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ADVANCING PSYCHOLOGICAL SCIENCE

VOLUME THREE

RESEARCH IN DEVELOPMENTAL, PERSONALITY, AND SOCIAL PSYCHOLOGY

EDITED BY

FILLMORE H. SANFORD

E. JOHN CAPALDI

PH INDIA

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Volume 1: Philosophies, Methods, and Approaches

Volume 2: Research in Perception, Learning, and Conflict

Volume 3: Research in Developmental, Personality, and Social Psychology

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by Fillmore H. Sanford and E. John Capaldi.

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PREFACE

Psychology teachers have many different aspirations for their undergraduate courses, and almost every teacher has his own strategy for making his course a rewarding experience for his students. Many teachers feel that a book of readings can add a significant dimension of meaning to regular courses, and these teachers will surely agree that the readings should supply something that the texts do not. Not all teachers see eye to eye, at the level of specifics, about the functions a readings book can serve, nor do they agree on what kinds of materials should be included in such an adjunct to a standard text. But all will give ready assent to the general proposition that a book of readings should add to the student's depth of understanding and increase his appreciation of the field of psychology. In preparing this series of readings books, the editors began with this one widely shared and relatively abstract aspiration and searched the literature for materials that they deemed likely to contribute to the depth and fullness of the student's experience as he studies the science of psychology.

A number of interlocking strategies guided the selection and arrangement of the materials. There was a strategy of packaging. Since not all teachers necessarily wish to assign all the material included in the lengthier books of readings, we thought it useful—and perhaps considerate of the student's book budget—to divide our selections into three smaller units, each constituting a coherent array of materials. Such a division will allow the individual teacher the choice of assigning those readings he feels he needs in order to supplement most meaningfully the combination of himself and the text he uses, or of assigning all three volumes if he wishes.

We felt also that there were three important ways in which properly

selected readings can supplement texts and add to the richness of the student's experience. First, we believe it will be valuable for the student to see the science of psychology in context, as it exists among other scientific disciplines, and to see all the scientific disciplines—the whole scientific enterprise—in the more general context of man's various attempts to make sense out of the world he lives in. Volume 1 of this series is our attempt to do something about that belief. Therefore, it begins with a consideration of science in general, then works its way toward an appreciation of psychology as a scientific discipline.

Second, we felt that the student could neither fully understand nor properly appreciate psychology without digging deeply into at least a few substantive areas of concern. So we left the strategy of comprehensiveness to the textbooks, and selected materials for Volumes 2 and 3 that stay with a single topic long enough and explore it in enough different ways to give the student, if he seeks it, some knowledge-in-depth in selected areas of psychological research. There is no attempt to be either representative or comprehensive. There is instead an attempt to expose the student as fully as possible to a limited number of significant psychological problems.

Third, we felt strongly that students would not only profit by but perhaps also enjoy an intimate exposure to the intellectual adventure involved in the actual gathering of psychological knowledge. To implement this conviction, we chose materials that take the student relatively far—perhaps precipitously—into matters of methods. And by methods, we mean not only the bright gimmicks and gadgets used in experimentation, but the intellectual methods employed in the stating and testing of hypotheses. Also—a consideration we thought very important—we wanted the student to see and appreciate the cumulative process of science. So we began by searching for early articles that stated hypotheses that subsequently led to a substantial amount of research. Then we sampled the relevant literature in order to follow the scientific fate of the original hypotheses, and to reveal at least some of the ways in which that fate, through research, unfolds. Perhaps we tended to select articles generally favorable to the original hypotheses, as we did not want to produce too much cognitive strain. But we did put in some troubles and dissonances: we would not be presenting the reality of psychological research had we not, and to us there are obvious advantages in showing difficulties and puzzles as well as victories.

Although we try in various ways to help the student grasp the material we give him, the books, particularly the last two, may still be difficult reading. We are of two minds about that. Psychology is a

difficult subject, we say, and the sooner the student knows it the better. Psychology is no longer, if it ever was, in the realm of codified and monosyllabic common sense. Psychology is not a simple discipline; but we still should not foist upon the student material that is forbiddingly difficult. Therefore, we hope that our introductory and interstitial material, together with the glossaries, will help reduce unnecessary and pointless difficulties. If these efforts are not enough, we comfort ourselves with the knowledge that the teacher is there to help, in ways no editor or text writer can aspire to.

We wish to express our appreciation here, as we have done in correspondence, to those instructors in various colleges and universities who gave us such willing and, in our eyes, such perceptive advice about the best functions for such volumes. We hope we have succeeded at least reasonably well in translating their ideas into usable books.

We have gratitude also, of a very special kind, for those psychologists whose works of research and scholarship are presented in this series. We hope we have represented them well, and that the appearance here of the results of their efforts will, in the long run, contribute —in a way that they themselves will approve—to the advancement of the discipline to which they have committed their creative efforts.

Finally, we wish to thank Mr. Hugh Poynor and Miss Willie O'Berry, who were asked to go one mile but went two in shepherding this project into print.

F. H. S.
E. J. C.

CONTENTS

INTRODUCTION

A great deal of psychology is concerned with such processes as sensing, perceiving, learning, and cognition. Volume 2 of this series dealt with research into some of these processes. In Volume 3, we turn to research that is concerned less with individual processes than with the behavior of the whole organism. We begin with matters of organic development and deal with that development as it bears on the learning process. Then we inquire into one significant aspect of human personality, and finally into two factors in the social behavior of the whole human individual.

In dealing with the behavior of the whole organism rather than the phenomena involved in one kind of process, the psychologist encounters new and different problems of theory, of observation, and of measurement. Psychologists who aspire to study and to write about attributes or behavior of the whole organism agree neither with their more molecularly oriented and process-centered colleagues, nor always with one another about the best road to scientific knowledge. Knowledge, nevertheless, continues to accumulate.

In this volume we will see a number of approaches to the scientific study of molar behavior as well as a variety of substantive areas in which knowledge is accumulating. Four selections treat of development of the organism, and these for reasons well argued in the first article, in the developmental section, all deal with subhuman species. They nevertheless—or perhaps therefore—illustrate clearly not only some of the basic factors in the development of any organism but show also how persistent effort and openness to data lead the researcher to the creation of scientific knowledge.

The second section of the book deals with the psychology of per-

sonality, and carries selected articles and excerpts that trace the history of more than a decade of research into one personality variable, or syndrome—that of authoritarianism. Work in the theory of authoritarianism attempts to define this variable clearly; efforts to measure it precisely have occupied many psychologists since the publication, in 1950,* of the first scientific study dealing with the matter. Our selections tap, at a number of crucial points, that stream of research and writing, thereby illustrating not only the flow of scientific research but affording the student a fairly thorough exposure to one (if only one) approach to the study of the behavior of the whole and organized individual.

The selections in the area of social psychology were made on the basis of the same dual strategy: (1) they are intended to show the student the accumulation of knowledge over time, and (2) to offer a relatively full exposure of two of the numerous lines of research employed by those psychologists who study the behavior of the individual in a social setting. The first selections deal with the phenomena of social influences on perception. The final selection deals with the question of affiliative tendency.

* T. W. Adorno *et al., The Authoritarian Personality*. See Section 2, *Personality*, of this book.—Ed.

1

DEVELOPMENTAL

Developmental psychology is concerned with ways in which the specific internal and external events acting on an organism influence its behavior as a function of age, or stages of development. It is a wide discipline. It rightly includes the study of any organism from protozoan to man at any stage of its development from conception to death, and any psychological process properly falls within its boundary. One developmental psychologist might ask how specific hormones affect sexual behavior in young birds, another might be concerned with how well elderly people adjust to new social norms.

The first article in this section consists of a series of experiments that Harry F. Harlow attempts to piece together into a meaningful picture of the learning ability of the rhesus monkey as the animal develops from birth to maturity. Harlow is careful to indicate why he employed the rhesus monkey in these investigations; and the student will want to pay careful attention to the point he raises. Harlow is interested in isolating the laws governing the development of learning ability, so the selection of the rhesus for study constitutes a research strategy. Scientists are accustomed to employing such strategies; indeed, this is the rule. The reader should keep in mind that if a different research problem were under investigation, such as the development of motivation rather than of learning, not the rhesus but a different organism might well have been selected for study. Each experimental problem carries with it a more or less unique set of demands that is sometimes evident, sometimes not; and determining what sorts of strategies will satisfy these demands often requires not only a wide knowledge of the field but a high degree of creative imagination.

THE DEVELOPMENT OF LEARNING IN THE RHESUS MONKEY*

Harry F. Harlow

During the last five years we have conducted an integrated series of researches tracing and analyzing the learning capabilities of rhesus monkeys from birth to intellectual maturity. Control over the monkey's environment has been achieved by separating the infants from their mothers at birth and raising them independently, using techniques and methods adapted from those described by van Wagenen (1950).

There are many characteristics that commend the rhesus monkey as a subject for investigation of the development of learning. At birth, or a few days later, this animal attains adequate control over its head, trunk, arm, and leg movements, permitting objective recording of precise responses on tests of learning. The rhesus monkey has broad learning abilities, and even the neonatal monkey rapidly learns problems appropriate to its maturational status. As it grows older, this monkey can master a relatively unlimited range of problems suitable for measuring intellectual maturation. Although the rhesus monkey matures more rapidly than the human being, the time allotted for assessing its developing learning capabilities is measured in terms of years—not days, weeks, or months, as is true with most subprimate forms. During this time a high degree of control can be maintained over all experimental variables, particularly those relating to the animal's learning experiences. Thus, we can assess for all learning problems the relative importance of nativistic and experiential variables, determine the age at which problems of any level of difficulty can first be solved, and measure the effects of introducing such learning problems to animals before or after this critical period appears. Furthermore, the monkey may be used with impunity as a subject for discovering the effects of cerebral damage or insult, whether produced by mechanical intervention or by biochemical lesions.

The only other creature whose intellectual maturation has been studied with any degree of adequacy is the human child, and the data from this species attest to the fact that learning capability increases

* From *American Scientist*, 1959, pp. 459–479. By permission.

with age, particularly in the range and difficulty of learned tasks which can be mastered. Beyond this fact, the human child has provided us with astonishingly little basic information on the nature or development of learning. Obviously, there are good and sufficient reasons for any and all such deficiencies. There are limits beyond which it is impossible or unjustifiable to use the child as an experimental subject. The education of groups of children cannot be hampered or delayed for purposes of experimental control over either environment or antecedent learning history. Unusual motivational conditions involving either deprivation or overstimulation are undesirable. Neurophysiological or biochemical studies involving or threatening physical injury are unthinkable.

Even aside from these cultural limitations, the human child has certain characteristics that render him a relatively limited subject for the experimental analysis of the maturation of learning capability. At birth, his neuromuscular systems are so undeveloped that he is incapable of effecting the precise head, arm, hand, trunk, leg, and foot movements essential for objective measurement. By the time these motor functions have adequately matured, many psychological developmental-processes, including those involving learning, have appeared and been elaborated, but their history and nature have been obscured or lost in a maze of confounded variables.

By the time the normal child has matured physically, he is engaging each day in such a fantastic wealth of multiple learning activities that precise, independent control over any single learning process presents a task beyond objective realism. The multiple, interactive transfer processes going on overwhelm description, and their independent experimental evaluation cannot be achieved. Even if it were proper to cage human children willfully, which it assuredly is not, this very act would in all probability render the children abnormal and untestable and again leave us with an insuperable problem.

It might appear that all these difficulties could be overcome best by studying the development of learning abilities in infraprimate organisms rather than monkeys. Unfortunately, the few researches which have been completed indicate that this is not true. Animals below the primate order are intellectually limited compared with monkeys, so that they learn the same problems more slowly and are incapable of solving many problems that are relatively easily mastered by monkeys. Horses and rats, and even cats and dogs, can solve only a limited repertoire of learning tasks, and they learn so slowly on all but the simplest of these that they pass from infancy to maturity before their intellectual measurement can be completed. Even so, we

possess scattered information within this area. We know that cats perform more adequately on the Hamilton perseverance test than do kittens and that the same relationship holds for dogs compared with puppies (Hamilton, 1911, 1916). It has been demonstrated that mature and aged rats are no more proficient on a multiple-T maze than young rats (van Wagenen, 1950), and that conditioned responses cannot be established in dogs before 18–21 days of age (Fuller, Easler, and Banks, 1950); but such data will never give us insight into the fundamental laws of learning or maturation of learning.

Neonatal and Early Infantile Learning: the First Sixty Days

Because learning and the development of learning are continuous, orderly processes, classifying learning into temporal intervals is an arbitrary procedure. However, a criterion that may be taken for separating early learning from later learning is the underlying motive or incentive. Solid foods are precluded as incentives for monkey learning prior to 40–60 days of age, forcing the experimenter to depend upon such rewards as liquid nutrients, shock avoidance, exploration, and home cage conditions. It is recognized that these same rewards may be used to motivate older primates on learning tasks, but for them the convenient incentive of solid food becomes available. Another arbitrary criterion that may be taken for choosing this temporal period lies in the fact that fear of strange, new situations—including test situations—only appears toward the end of this period.

Conditioned Responses. The earliest unequivocal learned responses which we obtained from the rhesus monkey were conditioned responses in a situation in which an auditory stimulus was paired with electric shock. The standard procedure was to adapt the neonatal monkeys during the first two days of life by placing them for ten minutes a day in the apparatus, which consisted of a cubic Plexiglas stabilimeter with a grid floor, enclosed in a sound-deadened cabinet with a one-way-vision screen on the front. Conditioning trials were initiated on the third day, the tone and shock intervals being mechanically fixed at two seconds and one second, respectively, and administered either separately or paired. The animals were divided into three groups and were given daily trials as follows: five experimental subjects (T-S group) were given eight paired tone-shock trials and two test trials; four pseudoconditioning controls (P-C group) were given eight shock trials and two test trials in which tone only was presented; and four stimulus-sensitization controls (T-O group) received ten tone trials but never received shock from the grid floor.

Conditioned and unconditioned responses were measured in terms of both the continuous, objective activity records taken from an Esterline-Angus recorder and the check-list records made by two independent human observers.

The learning data presented in Figure 1 show early and progressive learning. The differences between the frequency of conditioned responses by the five experimental subjects and the four subjects in each of the control groups were significant, even though clear-cut evidence of pseudoconditioning was found in one of the P-C animals.

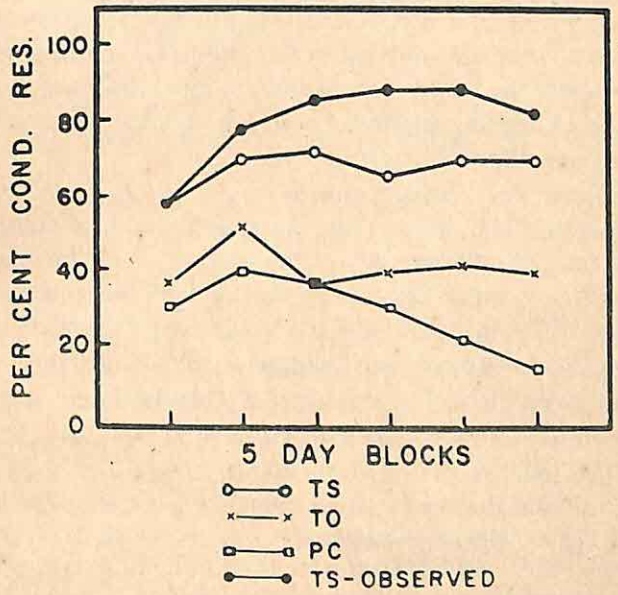


Figure 1. *Conditioned response to tone.*

It will be noted that the observers recorded a higher frequency of conditioned responses than could be identified from the stabilimeter record. The observational data indicate that these tone-shock conditioned responses were learned by three subjects on the second test day and that unequivocal conditioning took place in four of the five subjects. The observational data also show that the form of the conditioned response changes with training, starting as a diffuse response and gradually becoming more precise. As training progressed, most subjects responded to the conditioned stimulus by standing erect, sometimes on one foot.

Limited tests failed to demonstrate any generalization of the conditioned response to the experimenter or to auditory stimuli presented

outside the test situation. Retention tests made fifteen days after the completion of the original training revealed very considerable learning loss, ranging for individual subjects from no definite indication of retention, to conditioned responses on about half the test trials.

Straight-Runway Performance. An apparently simple learned response, which has been frequently used by psychologists in studying rat learning, is the straight runway. We produced such an apparatus by simply using the monkey's living cage as the runway and introducing a nursing booth at one end prior to each feeding period. At the time of testing, the subject was taken to the far end of the home cage, faced toward the nursing booth, released, and allowed thirty seconds to enter the booth. The number of daily trials was determined by number of feeding sessions, twelve a day during the first two weeks, and ten a day subsequently.

The subjects were divided into three groups: For the light-conditioned animals (L-C group) the nursing booth was suffused with flashing green light during each of the training trials; for the no-light monkeys (N-L group) there were no conditioning cues other than those afforded by the test situation and the act of orientation; for the light-extinguished subjects (L-I group) the nursing booth was suffused with green light, but this light was immediately extinguished when the monkey entered the booth and simultaneously there began a five-minute delay period before feeding.

The data presented in Figure 2 offer evidence of rapid and progressive improvement in performance. Many of the failures during the first ten days resulted from locomotor limitations or from the disturbing effects of reorientation and restraint by the experimenter. It is clear, however, that learning occurred early in life and that the cue of green light added little or nothing to the cues provided by the presence of the experimenter and postural orientation. The L-I group, which did not receive food upon approach to the nursing booth, was significantly inferior to the other two groups, and it is possible that the green light became a cue for absence or delay of feeding.

Spatial Discrimination. Two groups of ten monkeys each were tested on a spatial discrimination problem requiring choice of the right or left alley of the Y-maze. One group of subjects began training at fifteen days of age (group 15), after four days of adaptation, and the other group started maze learning at forty-five days of age (group 45). Two trials were given each day, a correct trial being rewarded by entrance into the home cage, a highly effective incentive for the

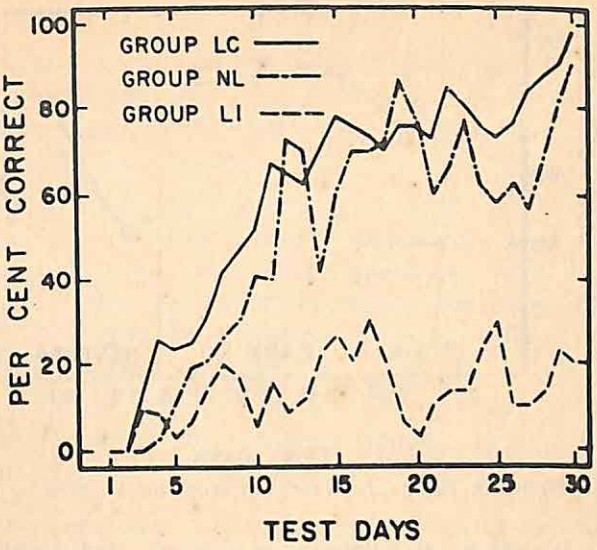


Figure 2. *Straight-runway performance.*

infant monkey, whereas an incorrect response, defined as entrance into the incorrect antechamber, was punished by a one-minute delay before rerunning. A rerun technique was used throughout this test, i.e., whenever the monkey made an error, it was returned to the starting position and run again until it made the correct choice and reached the home cage. Spatial discrimination learning was continued for twenty-five days; on the twenty-sixth day the position of the correct goal box was reversed and the same training schedule of two trials per day continued.

The percentages of correct initial responses made by group 15 on days 1, 2, 5, 10, and 15 are 45, 60, 75, 75, and 95, respectively. Comparable percentages for group 45 are 80, 55, 65, 85, and 100. Despite the high percentage of correct responses made by group 45 on day 1, the two learning curves, as illustrated in Figure 3, are very similar. Excluding a single member in each group that failed to adapt to the test situation and never met the criterion of 18 correct responses in 20 consecutive trials, the mean number of trials to this criterion, excluding the criterional trials, was 8.5 for group 15 and 6.2 for group 45.

The percentage of correct responses dropped below chance for both groups of monkeys during the first five reversal trials, and trial 1 was especially characterized by multiple, persistent, erroneous choices. During all these trials the animals made many violent emotional re-

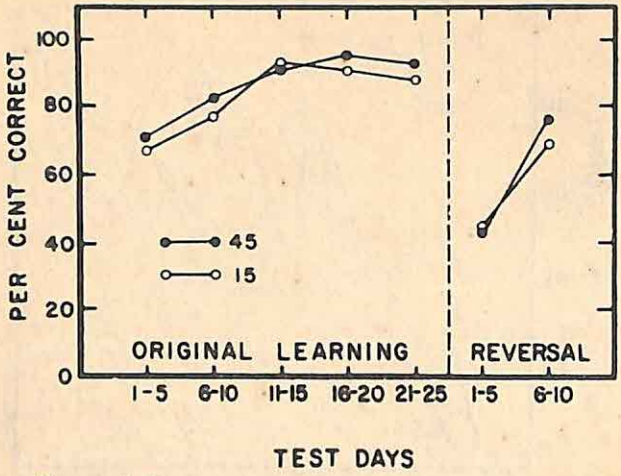


Figure 3. *Per cent correct response on Y-maze.*

sponses as indicated by balking, vocalization, and autonomic responses, including blushing, urination, and defecation. Even so, all but one subject in group 15 attained the criterion of 18 correct responses in 20 consecutive trials, and the mean number of trials to learn, not including the criterional trials, was 19.2 for group 15 and 11.9 for group 45.

Although the performance of the older group was superior to that of the younger, particularly on the reversal problem, the differences were not statistically significant. Certainly the 15-day-old macaques solved this spatial learning task with facility, and their performance leaves little to be gained through additional maturation.

Infant Learning: the First Year

The most surprising finding relating to neonatal learning was the very early age at which simple learning tasks could be mastered. Indeed, learning of both the simple conditioned response and the straight-runway appeared as early as the animal was capable of expressing it through the maturation of adequate skeletal motor responses. Thus, we can in no way exclude the possibility that the monkey at normal term, or even before normal term, is capable of forming simple associations.

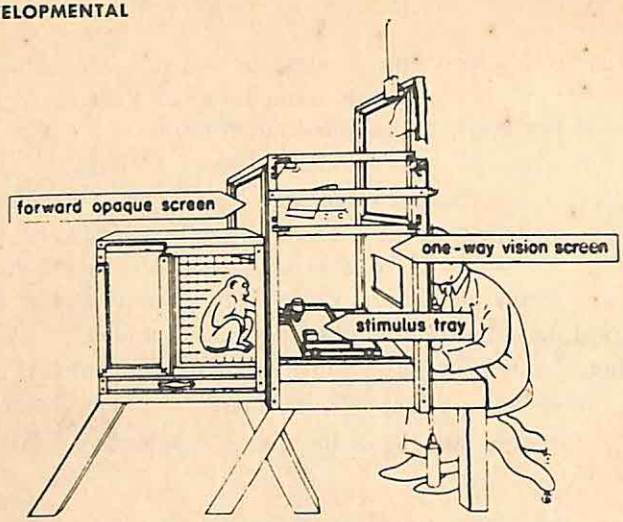
Equally surprising is the fact that performance may reach or approach maximal facility within a brief period of time. The five-day-old monkey forms conditioned reflexes between tone and shock as rapidly as the year-old or the adult monkey. The baby macaque solves the

simple straight-alley problem as soon as it can walk, and there is neither reason nor leeway for the adult to do appreciably better. Although we do not know the minimal age for solution of the Y-maze, it is obviously under fifteen days. Such data as we have on this problem indicate that the span between age of initial solution and the age of maximally efficient solution is brief. One object discrimination, the differentiation between the total-black and total-white field, shows characteristics similar to the learning already described. The developmental period for solution lies between six and ten days of age, and a near maximal learning capability evolves rapidly. However, it would be a serious mistake to assume that any sharply defined critical periods characterize the development of more complex forms of learning or problem solving.

Object Discrimination Learning. Although the 11-day-old monkey can solve a total-black *versus* total-white discrimination problem in less than thirteen trials, the 20- to 30-day-old monkey may require from 150 to 200 trials to solve a triangle-circle discrimination problem when the stimuli are relatively small and placed some distance apart. It is a fact that, even though the capability of solving this more conventional type of object-discrimination problem exists at twenty days, object-discrimination learning capability has by no means attained full maturity at this time.

The development of complete object-discrimination capacity was measured by testing five different age groups of naive rhesus monkeys on a single discrimination problem. Discrimination training was begun when the animals were 60, 90, 120, 150 or 366 days of age, and, in all cases, training was preceded by at least fifteen days of adaptation to the apparatus and to the eating of solid food. There were eight subjects in group 366 (as defined by age), ten in group 60, and fifteen in each of the other groups. A Wisconsin General Test Apparatus, illustrated in Figure 4, was used throughout the test sessions. A single pair of three-dimensional stimuli differing in multiple attributes such as color, form, size, and material was presented on a two-foodwell test tray of the Klüver type. The animals were given twenty-five trials a day, five days a week, for four weeks, a total of 500 trials. A noncorrection method was always used.

Figure 5 presents the number of trials taken by the five different groups of monkeys, and performance by a 30-day-old group on a triangle-circle discrimination is plotted on the far left. Whether or not one includes this group, it is apparent that the ability of infant mon-



WISCONSIN GENERAL TEST APPARATUS

Showing: Stimulus tray
One-way vision screen in lowered position
Forward opaque screen in raised position

Figure 4. *Wisconsin General Test Apparatus.*

keys to solve the object-discrimination problem increases with age as a negatively accelerated function and approaches or attains an asymptote at 120 to 150 days.

Detailed analyses have given us considerable insight into the processes involved in the maturation of this learning function. Regardless of age, the monkeys' initial responsiveness to the problem is not random or haphazard. Instead, almost all the subjects approached the problem in some systematic manner. About twenty per cent of the monkeys chose the correct object from the beginning and stayed with their choice, making no errors! Another twenty per cent showed a strong preference for the incorrect stimulus and made many errors. Initial preference for the left side and for the right side was about equally frequent, and consistent alternation-patterns also appeared. The older, and presumably brighter, monkeys rapidly learned to abandon any incorrect response tendency. The younger, and presumably less intelligent, monkeys persisted longer with the inadequate response tendencies, and very frequently shifted from one incorrect response tendency to another before finally solving the problem. Systematic responsiveness of this type was first described by Krechevsky (1932) for rats and was given the name of "hypotheses." Although this term has unfortunate connotations, it was the rule and not the

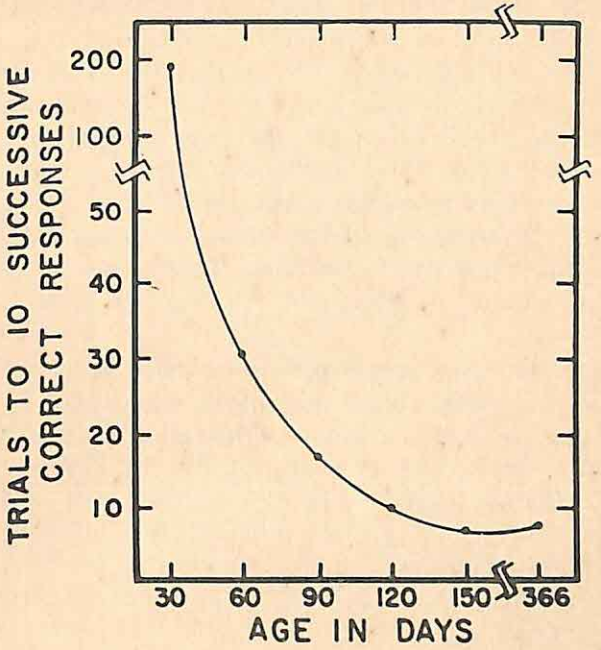


Figure 5. *Initial discrimination learning as a function of age.*

exception that our monkey subjects went from one "hypothesis" to another until solution, with either no random trials or occasionally a few random trials intervening. The total number of incorrect, systematic, response tendencies before problem solution was negatively correlated with age.

These data on the maturation of discrimination learning capability clearly demonstrate that there is no single day of age nor narrow age-band at which object-discrimination learning abruptly matures. If the "critical period" hypothesis is to be entertained, one must think of two different critical periods, a period at approximately twenty days of age, when such problems can be solved if a relatively unlimited amount of training is provided, and a period at approximately 150 days of age, when a full adult level of ability has developed.

Object Discrimination Learning Set. The present writer, in 1949, demonstrated that adolescent or adult monkeys trained on a long series of six-trial discrimination problems showed progressive im-

provement from problem to problem. As successive blocks of problems were run, the form of the learning curve changed from positively accelerated, to linear, to negatively accelerated; finally, there appeared to be two separate curves or functions, i.e., performance changed from chance on trial 1 to perfection or near perfection on and after trial 2. From trial 1 to 2 the curve is precipitate and from trial 2 onward it is flat. This phenomenon, called "learning set formation" or "interproblem learning," has proved to be a useful tool in comparative, physiological, and theoretical psychology. To obtain evidence concerning the maturational factors involved, the performance of various age groups of monkeys was measured on this task.

The same five infant groups previously tested on a single object-discrimination problem served as subjects for learning-set training. Upon completion of the original discrimination problem they were tested on four discrimination problems a day five days a week, each problem six trials in length. Group 366 was trained on 400 problems and the other monkeys on 600 problems. The individual test-trial procedures were identical to those employed in regular object-discrimination learning, but a new pair of stimuli was introduced for each new problem.

The trial 2 performance of the five groups of infant monkeys is plotted in Figure 6, and data from mature monkeys tested in previous experiments are also given. The two younger groups fail to respond

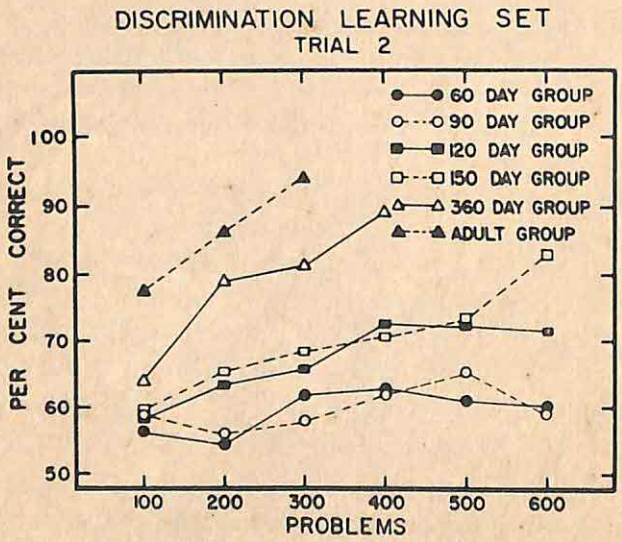


Figure 6. *Learning set formation as a function of age.*

consistently above a sixty per cent level even though they were approximately ten and eleven months of age at the conclusion of training. The two older groups show progressive, even though extremely slow, improvement in their trial 2 performances, with groups 120 and 150 finally attaining a seventy and eighty per cent level of correct responding. These data are in general accord with those obtained from an earlier, preliminary experiment and indicate that the year-old monkey is capable of forming discrimination learning sets even though it has by no means attained an adult level of proficiency.

In Figure 7 the trial 2 learning-set performance for the various

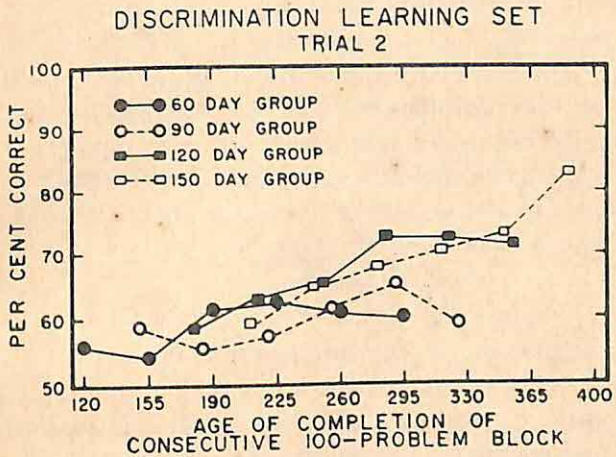


Figure 7. *Learning set plotted for age of completion of consecutive 100-problem blocks.*

groups is plotted in terms of age of completion of consecutive 100-problem blocks, and these data suggest that the capacity of the two younger groups to form discrimination learning sets may have been impaired by their early, intensive learning-set training, initiated before they possessed any effective learning-set capability. Certainly, their performance from 260 days onward is inferior to that of the earlier groups with less experience but matched for age. The problem which these data illustrate has received little attention among experimental psychologists. There is a tendency to think of learning or training as intrinsically good and necessarily valuable to the organism. It is entirely possible, however, that training can either be helpful or harmful, depending upon the nature of the training and the organism's stage of development.

Because of the fundamental similarities existing between the learning of an individual problem and the learning of a series of problems

of the same kind, it is a striking discovery that a great maturational gulf exists between efficient individual-problem learning and efficient learning-set formation. Information bearing on this problem has been obtained through detailed analyses by the author. The author's error-factor analysis technique (1950) reveals that, with decreasing age, there is an increasing tendency to make stimulus-perseveration errors, i.e., if the initially chosen object is incorrect, the monkey has great difficulty in shifting to the correct object. Furthermore, with decreasing age there is an increasing tendency to make differential-cue errors, i.e., difficulty in inhibiting, on any particular trial, the ambiguous reinforcement of the object *per se*.

In all probability, individual-problem learning involves elimination of the same error factors or the utilization of the same hypotheses or strategies as does learning-set formation. However, as we have already seen, the young rhesus monkey's ability to suppress these error factors in individual-problem learning does not guarantee in any way whatsoever a capacity to transfer this information to the interproblem learning-set task. The learning of the infant is specific and fails to generalize from problem to problem, or, in Goldstein's terms, the infant possesses only the capacity for concrete thinking. Failure by the infant monkey to master learning-set problems is not surprising inasmuch as infraprimate animals, such as the rat and the cat, possess the most circumscribed capabilities for these interproblem learnings, and it is doubtful if the pigeon possesses any such ability at all. Indeed, discrimination learning-set formation taxes the prowess of the human imbecile and apparently exceeds the capacity of the human idiot.

The Development of Terminal Learning Ability

At the present time we have completed a series of experiments which clearly demonstrate that the capability of solving problems of increasing complexity develops in rhesus monkeys in a progressive and orderly manner throughout the first year of life. Furthermore, when we compare the performances of the year-old monkey and the adult monkey, it becomes obvious that maturation is far from complete at the end of the first year. Although our data on early development are more complete than our data on terminal learning capacities, we have already obtained a considerable body of information on middle and late learning growth.

Hamilton Perseverance Test. Three groups of monkeys were initially

tested at 12, 30, and 50 months of age, respectively. The groups comprised six, five, and seven monkeys, and all were tested twenty trials a day for thirty days. On the perseverance problem the animal is faced with a series of four boxes having spring-loaded lids which close as soon as they are released. Only one box contains food, and the rewarded box is changed in a random manner from trial to trial with the provision that the same box is never rewarded twice in succession. In the present experiment the subjects were allowed only four responses per trial, whether or not the reward was obtained, and an error was defined as any additional response to an unrewarded box after the initial lifting of the lid during a trial. Infraprimate animals make many errors of this kind, but as can be seen in Figure 8, the mature

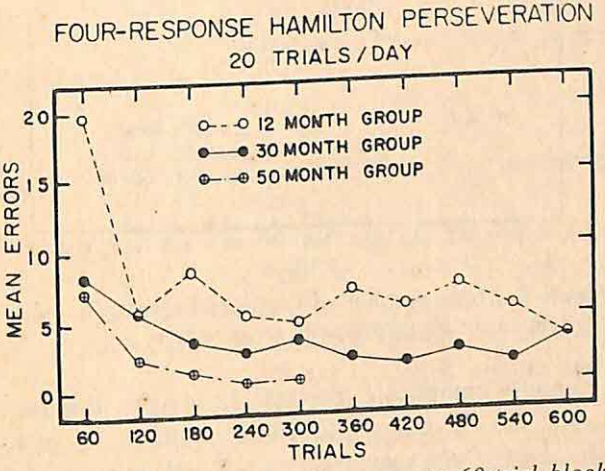


Figure 8. *Mean number of errors per 60-trial block on Hamilton perseverance test.*

monkey makes few such errors and learns rather rapidly to eliminate these. We were surprised by the inefficient performance of the year-old monkey and unprepared to discover that maximally efficient performance was not attained by the 30-month-old monkeys.

The mature monkey finds a simple plan for attacking the perseverance problem. Typically, it chooses the extreme left or right box and works systematically toward the other end. If it adopts some more complex strategy, as responding by some such order as box 4–2–3–1, it will repeat this same order on successive trials.

Since the animal's procedural approach to the perseveration problem appeared to be an important variable, measures were taken of changes in the animal's order of responding from trial to trial, and

these were defined as response-sequence changes. The data of Figure 9 show that the 50-month-old monkeys adopt the invariant type of behavior described above but that this is not true for either the 12- or 30-month old groups. If a subject adopts an invariant response pattern, the problem is by definition simple; failure to adopt such a

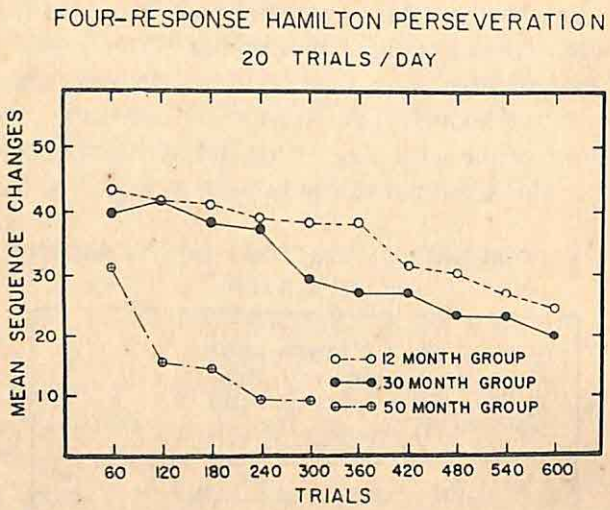


Figure 9. *Mean number of sequence changes per 60-trial block on Hamilton perseverance test.*

pattern can greatly complicate the task. In view of this fact it is not surprising that the 30-month-old subjects made so many errors; rather, it is surprising that they made so few—their error scores represent a triumph of memory over inadequate planning.

Relatively little research on the Hamilton perseverance method has been conducted by psychologists in spite of the fact that the original studies resulted in an effective ordering of Hamilton's wide range of subjects in terms of their position within the phyletic series. Furthermore, the limited ontogenetic material gave proper ordering of animal performance: kittens, puppies, and children were inferior to cats, dogs, and human adults. Above and beyond these facts, the perseverance data give support to the proposition that the rhesus monkey does not attain full intellectual status until the fourth or fifth year of life.

Summary and Interpretation

Half a decade is entirely too brief a period to establish a definitive program on the maturation of learning ability in the rhesus monkey,

particularly in the later age ranges. However, within this period of time we have developed the techniques and conducted tests which demonstrate that such a program is entirely feasible. The monkey is capable of solving simple learning problems during the first few days of life and its capability of solving ever increasingly complex problems matures progressively, probably for four to five years.

Early in life, new learning abilities appear rather suddenly within the space of a few days, but, from late infancy onward, the appearance of new learning powers is characterized by developmental stages during which particular performances progressively improve. There is a time at which increasingly difficult problems can first be solved, and a considerably delayed period before they can be solved with full adult efficiency.

The monkey possesses learning capacities far in excess of those of any other infrahuman primate, abilities probably comparable to those of low-level human imbeciles. The monkey's learning capabilities can give us little or no information concerning human language, and only incomplete information relating to thinking. These are the generalizable limits of learning research on rhesus monkeys, but they still leave us with an animal having vast research potentialities. There is a wealth of learning problems which the monkey can master, and at present the field is incompletely explored. The maturation of any learning function can be traced and the nature and mechanisms underlying interproblem and intertask transfer can be assessed. There exist great research potentialities in analyzing the fundamental similarities and differences among simple and complex learnings within a single species. The monkey is the subject ideally suited for studies involving neurological, biochemical, and pharmacological correlates of behavior. To date, such studies have been limited to adult monkeys, or monkeys of unspecified age, but such limited researches are no longer a necessity. We now know that rhesus monkeys can be raised under completely controlled conditions throughout a large part, and probably all, of their life span, and we may expect that the research of the future will correlate the neurophysiological variables, not with the behavior of the static monkey, but with the behavior of the monkey in terms of ontogenetic development.

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Konrad Lorenz, a European biologist, is widely regarded as the prime mover of the relatively new discipline of ethology, a discipline which may be described as the study of behavior patterns that are more or less peculiar to a given animal species. The ethologist and the psychologist are alike in that both study behavior; differences between the two are probably more a matter of emphasis than of kind. Although the ethologist usually employs naturalistic or observational methods in studying what are frequently termed "instinctive" behavior patterns, he is nevertheless, like the psychologist, often found in the laboratory. Indeed, some of them study learned behavior. And to round out the picture, psychologists often behave like ethologists in that they too participate in naturalistic or observational research. Ethologists give a good deal of their attention to a variety of lower animal forms, particularly to fish and birds, whereas psychologists are more likely to be interested in the relevance of research in animal behavior to an understanding of human beings.

We all know that young ducklings follow the mother duck. But why do the ducklings follow their mother rather than, say, a basketball? In part, because moving basketballs are not readily abundant in the wild; but they are available in the laboratory, and ducklings under certain conditions can even be made to follow a basketball. These conditions have been studied considerably, and in general, the tendency to follow a moving object, a tendency called "imprinting," can best be implanted when the object is presented to certain birds in a relatively early and brief period of their lives —for example, not less than three and not more than twenty-four hours after hatching. The period of imprintability between three and twenty-four

hours is referred to as a critical period. Similar critical periods have been found in other behavior patterns.

Lorenz first fully described and popularized imprinting for a scientific audience. He evolves, here, a rather elaborate series of hypotheses in connection with the phenomenon. Psychologists became interested in imprinting and in the speculations that Lorenz entertained in connection with it, and soon began testing some of his notions in the laboratory. While it would be unwise to maintain definite conclusions at this time, imprinting may be a good deal more analogous than Lorenz supposed to the typical learning process long familiar to the laboratory psychologist. It now seems obvious that much of Lorenz's thinking is in need of extensive modification. The reader, however, should approach Lorenz's paper with the intention of becoming acquainted with the ideas of an original and creative thinker who in the beginning is structuring a variety of problems, problems leading down paths that others will follow.

COMPANIONSHIP IN BIRD LIFE*

Konrad Lorenz

To the casual observer it is usually surprising, or even incredible, that a bird should not invariably recognize other members of its species innately and quite "instinctively," and react to them accordingly. However, very few birds do so. Contrary to all mammals that have been studied in this connection, young birds of most species, if reared in isolation, do not recognize other birds of their species when they are brought together. In other words, another individual of the same species does not release the behavior that normally responds to it. On the other hand, young birds of most species, if isolated from their peers and raised by humans, will respond to them with instinctive acts that relate to birds of their species.

This behavior seems so odd, so "crazy," that it strikes anyone who first meets it when he rears birds as a pathological symptom, which he interprets as a "prison psychosis" or some such phenomenon. When it appears again and again, in perfectly healthy specimens of the most varied species, and even in animals who have grown up in full freedom, one gradually comes to realize that it is a standard re-

* From C. H. Schiller (Ed.), *Instinctive Behavior: The Development of a Modern Concept.* International Universities Press, Inc., 1957, pp. 102–110. By permission.

action, and that in most birds the adequate object of an instinctive social reaction is not innately determined. This object is acquired in the course of individual life, through a process which is so singular that it calls for detailed discussion.

If we hatch the egg of a curlew (*Numenius*) or of a great godwit (*Limosa*) in an incubator, and adopt the young bird as soon as it is hatched, it will have nothing to do with us as foster parents. The fledgling flees at sight of a human, and displays none of the instinctive actions modeled on its parents, except possibly in delicately tuned dummy experiments of a sort that, unfortunately, no one has yet made. In these two species, and in several other autophagous birds that hatch in advanced stages of development, these instinctive acts can only be released by grown birds of their own species. In the idiom of *Umwelt* research, one might say: the young bird has an innate mechanism or "schema" of the parent. The nestling's innate image of the parent bird consists of enough characters so that its parent-specific motor patterns will be sure to respond only to an adult bird of its own species. The number of these key stimuli can be determined in cases where, by imitating them, we can successfully release the reactions dependent on the parents.

We have the same experience if, instead of a curlew, we adopt a greylag gosling that was hatched by its own parents and has lived with them for a few days. None of the gosling's reactions to its parents can be elicited by a human being. However, if a greylag gosling is taken into human care immediately after hatching, all the behavior patterns which are slanted to the parents respond at once to the human being. In fact, only very careful treatment can induce incubator-hatched greylag goslings to follow a grey goose mother. They must not be allowed to see a human being from the moment they break their shell to the time they are placed under the mother goose. If they do, they follow the human being at once. Heinroth (1910) has described this process very accurately: "I have often had to try and place an incubator gosling with a pair that was leading very young birds. In so doing, one meets all sorts of difficulties, which are typical for the whole psychological and instinctive behavior of our birds. When you open the lid of an incubator where young ducklings have just broken their shells and dried off, they will at first duck and sit quite motionless. Then, when you try to pick them up, they scoot away with lightning speed. Quite often they jump to the floor and hide beneath various objects, and one has a hard time getting hold of the tiny creatures. Not so young goslings. They look at you without

betraying any sign of fear; and, if you handle them even briefly, you can hardly shake them off. They peep pitifully if you walk away, and soon follow you about religiously. I have known such a little creature to be content if it could just squat under the chair on which I sat, a few hours after I had taken it from the incubator! If you then take such a gosling to a goose family with young of the same age, the situation usually develops as follows. Goose and gander look suspiciously at the approaching person, and both try to get themselves and their young into the water as quickly as they can. If you walk toward them very rapidly, so that the young have no chance to escape, the parents, of course, put up a spirited defense. This is the time to place the small orphan among the brood and leave in a hurry. In the excitement, the parents at first regard the newcomer as their own, and show an inclination to defend it as soon as they see and hear it in human hands. But the worst is yet to come. It doesn't even occur to the young gosling to treat the two old birds as geese. It runs away, peeping loudly, and, if a human being happens to pass by, it follows him: it simply looks upon humans as its parents." Heinroth goes on to say that a gosling can be placed under a mother goose successfully if put in a sack as soon as it is taken from the incubator, so that it never even gets to see a human being. He maintains, and rightly so, that newborn greylag goslings really look at the first creature they see upon entering the world "with the intention of stamping its picture accurately on their minds; for, as I have said before, these pretty, fluffy creatures do not seem to recognize their parents instinctively as members of their own species."

I have given this behavior of greylag goslings so much time and space because it is a classic example of the process under discussion. The young bird has no inherent knowledge of the object of its childhood reactions. This knowledge is gained through a single impression, to which it is only receptive at a critical period in its life. Moreover, the grey goose obviously "awaits" this impression at its susceptible period, that is, it has an innate urge to fill out this "gap" in its instinctive equipment. It should also be stressed that the genus *Anser* is an extreme in that very few characters of the parent companion are innate in the newborn bird. Except for their instinctive response to the specific alarm call of the species, they really seem to have no innate reaction to parent stimuli. They do not even seem to respond instinctively to the call note of the parents, as do so many small autophagous birds.

The process of imprinting differs radically from the acquisition of the objects of other instinctive acts whose releasing mechanism is not

innate. Whereas in the latter case the object seems always to be acquired by self-training, or learning, imprinting has a number of features which distinguish it fundamentally from a learning process. It has no equal in the psychology of any other animal, least of all a mammal. However, I would point out certain analogies in human psychology, which appear in the form of pathological fixations on the object of an instinct.

First among the points that distinguish imprinting from ordinary learning is that the object acquisition in question can only take place within a brief critical period in the life of an individual. In other words, a very specific physiological state in the young animal's development is required to accomplish it.

Secondly, once the physiologically critical period is over, the animal knows the imprinted object of its innate reactions to a fellow member of the species exactly as though this knowledge were innate. It cannot be forgotten! Yet, as C. Bühler (1927) in particular points out, it is essential to anything learned that it can be forgotten! Of course, since our knowledge of this field is in its infancy, it is too early to claim definitely that the imprinting process is irreversible. I infer that it is so from a fact frequently observed in hand-raised birds. Once their instinctive social reactions are transposed to a human being, their behavior does not change in the least even if they are later kept for years with other members of their own species and without human company. Such treatment cannot make them adopt other birds of their species as their equals, any more than a bird which is captured when fully grown can be induced to regard a human being as a member of its species. (Their behavior toward substitute objects, which seems to be an exception to the foregoing, will be discussed later.)

When a fourteen-day-old jackdaw directs its reactions toward its real parents, they have the prospective meaning of parents to the young bird. But at this time the instinctive actions dependent on fellow members of the species still have a far wider prospective potentiality of object selection. The parents, who already function as such, can still be displaced by another object. When the young jackdaw is first taken from the nest, it shies away from humans, because it already knows its parents by sight. Nevertheless, the parent companion, the releaser of the jackdaw's childhood reactions, can still be re-determined in another sense. A few hours later it will beg from its human foster parent; after about twenty days it is fledged; it begins to follow him in its flight, and its parent-centered drives can then no longer be re-determined "to jackdaws." Nor can a jackdaw who has

remained with its parents be transposed to humans at the same age. Prospective meaning and prospective potency are now one.

Two phases must be distinguished in the development of motor responses that are innate, but whose objects are not. There is an initial, usually very short phase, when the bird searches for the object that fits his innate movement; and a second, longer phase, when it has found the object to which its instincts respond, but during which "re-determination" is still possible. In some birds, as in the aforesaid autophagi, where a single impression is decisive, the second phase is extremely short. In their case, the entire mental development which insessorial birds undergo during their long nesting period is crowded into the few hours which they, too, spend in the nest.

As I have said before, the critical period for imprinting is the shortest and follows soonest after hatching in diverse groups of autophagous birds. I can say from my own experience that young mallards, pheasants and partridges, once they have followed their mother for only a few hours, will not trail a human being. Consequently these species can only be kept successfully if they are hatched artificially. Otherwise, humans elicit such violent escape reactions in the young birds that they may forget to eat, and perish. I believe it is quite possible that a single release of the trailing reaction may imprint the picture of the mother. I think this applies particularly to partridges. I have tried to rear partridge chicks brought to me by peasants who have caught them while mowing. The chicks are so young that they could not even stand all the time, but had to squat on their heels after every few steps. I know this stage well, it lasts only a few hours after the chicks have dried, and while it lasts, the mother leads them only a few yards at a time. Yet these baby partridges died, because they huddled and fled as soon as they were brought into light to be fed. They would not eat until they were too feeble to live. On the other hand, if partridges are hatched artificially, they are immediately tame with their foster parents, and easy to bring up.

The critical period for inductive determination, for imprinting the object of an instinctive act coined on a fellow member of the species, is not always so easy to ascertain as it is in the case of a greylag goose's or a partridge's behavior toward its parents. For this, there are two reasons.

One difficulty is that a number of characters may facilitate imprinting to the adequate object, while they make imprinting to a different object harder. The young bird has an innate disposition to react positively to such stimuli. As a result, if the bird has first responded to an inadequate object, it can still be transposed to a fellow member of the

species at a time when the reverse process is no longer possible. For instance, a young golden pheasant responds instinctively to the pheasant hen's call note by running toward the source of the sound (a thing which the greylag gosling does not do!). As a result, a pheasant that has been accustomed to humans can be readapted to the hen at a stage in its development when a "transplantation" from pheasant hen to human being is no longer feasible. Experiments by people who can really imitate bird calls successfully would be most revealing; unfortunately, I am not one of them.

A second difficulty is that the critical imprinting periods for the objects of two different innate reactions often overlap. This state of affairs seems to be quite common among birds with long nesting periods. I have noticed especially in sparrows that specimens who were isolated at a relatively late date would respond to humans with their reactions to parents; but their sexual instincts, which are likewise innate but whose releasers are not, would respond to a fellow member of the species. I witnessed a particularly striking instance of this when I once kept nine jackdaws of the same age. Three of them were unfledged when they came to me, the rest almost fully fledged. While they all begged from me, they were all tame. But when their childhood reactions were extinguished, the birds that had been captured later in life suddenly became shy, whereas the other three began to court me. Accordingly, it seems as if in the jackdaw the object of sex behavior was imprinted before the stimulus dependence of the young bird's innate reactions to its parents is finally determined. The process of imprinting does not appear to have been entirely completed, because at this time I was still able to record an occasional readaptation "to jackdaw," a thing that never happened in later phases.

Different functional cycles relating to a fellow member of the species are conditioned to the adequate object at different stages of individual development. This is of vital importance. It is one of the reasons why in captivity, in planned or accidental experiments, the various functional cycles can be "set" for different objects. I once had a young jackdaw reared in complete isolation, who was conditioned to me in all its jackdaw behavior, except for two functional cycles: the activities of flying with the flock, and those of feeding and caring for other young jackdaws. The first of these had been conditioned to hooded crows when its group instinct matured. They were the first flying *Corvidae* the jackdaw ever saw. Later, when it shared its attic with a whole flock of other jackdaws, it still kept flying with the free hooded crows. It did not regard the other jackdaws as flight companions. Every morning, when I had let the birds out, this one rose high into the sky and started to search for its flight companions, the

hooded crows, whom it always succeeded in locating unerringly. But when its parental reactions matured it suddenly adopted a recently fledged young jackdaw, whom it led and fed in a manner perfectly typical of the species. It is really a matter of course that the object of nursing behavior (activities involved in care of the offspring) must be innate. It cannot be acquired through earlier imprinting, since the bird's own young are the first it sees. In the life of this particular jackdaw a human being featured as the parent companion, hooded crows as flight companions, and a young jackdaw as the child companion!

Imprinting is often effected through the influence of parents and siblings, and yet it must determine the young bird's behavior toward all members of its species. For this reason, in the imprinted as in the innate mechanism of another individual of the species, only supra-individual properties typical of the species are selected from the picture of parent, brother or sister, to be imprinted permanently. It is remarkable enough that this can be accomplished in normal conditions; but it is even more amazing that the stimulus dependence of innate social reactions in a man-raised bird should be shifted, not to one human being, but to the species *homo sapiens*. A jackdaw who has adopted a human being for a parent and has become a completely "human bird" will not address its awakening sex impulses to its former parent companion. It will "fall in love," suddenly and unpredictably, with a comparative stranger, of either sex, but always with a human being. It even looks as if the former parent companion were not eligible as a "mate." But what are the signs by which this bird can tell that humans are "humans"? A great many questions of this sort are still unanswered.

One more problem must be discussed at this point. Who are the fellow members of the species that determine the releaser of an instinctive action chain?

In cases where imprinting comes long before the instinctive act itself, it must obviously be induced by a member of the species which is connected with the bird in another functional cycle. In all probability, the jackdaw's sexual instincts are modeled on its parent companion. At any rate, provided its human keeper gives a young jackdaw so much time and care that he functions as a full-fledged parent, the bird's sex behavior will be slanted to human beings even if it is raised with several brother and sister companions. In Heinroth's experience, many other birds such as owls, common ravens, partridges and the like, who had grown up with their own siblings, were sexually dependent on humans.

In other species the siblings determine future sex behavior. The

mallard ducks mentioned earlier whom I mothered consistently, were sexually normal, while a musk drake reared with them was imprinted "to mallards." Since this brother and sister community of mixed species stayed together into the following spring, I am unable to state when imprinting takes place.

Birds raised in complete isolation often slant all their instinctive actions to humans, even in species where imprinting normally stems from the sibling companion. Since a human being never functions as a brother or sister to a bird, it appears that the process of imprinting is not necessarily dependent on one specific companion.

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Lorenz maintained that imprinting cannot be forgotten, and that anything learned can be forgotten. This, you will remember, is one of the criteria Lorenz used to distinguish between imprinting and learning. Howard Moltz and Leonard A. Rosenblum attempted to determine if imprinting is indeed irreversible.

IMPRINTING AND ASSOCIATIVE LEARNING: THE STABILITY OF THE FOLLOWING RESPONSE IN PEKING DUCKS (ANAS PLATYRHYNCHOUS)*

Howard Moltz and Leonard A. Rosenblum

A great deal of interest has been shown recently in those aspects of filial behavior exhibited by young birds which Lorenz (1937) has referred to as "imprinting." The term imprinting, as it is used in contemporary ethology, is difficult to define precisely since it has been employed to denote the process or mechanism by means of which

* From *Journal of Comparative and Physiological Psychology*, Vol. 51, 1958, pp. 580–583. By permission.

several disparate behavior patterns are acquired. For example, imprinting has been appealed to as the mechanism responsible for the persistent following of animate objects by precocial birds shortly after hatching as well as the close attachment that some species manifest with respect to such inanimate aspects of the environment as cliffs, trees, etc. (Thorpe, 1956). However, for purposes of the present study the term will be used simply to denote the following of moving objects by precocial birds under experimental conditions that involve neither primary nor secondary reward.

Lorenz (1937) has maintained that one characteristic which serves to distinguish the following response from instrumental responses acquired by "associative learning" is that once acquired, the following response is irreversible. If the following response could be shown to be irreversible, or even extremely stable, under experimental conditions designed to insure that the object followed was not associated with either primary or secondary reward, then evidence will have been provided that suggests that the processes involved in imprinting are fundamentally different from those involved in the acquisition of most other types of learned behavior. However, despite the importance of such evidence for comparative ethology, the only controlled and systematic attempt to obtain evidence bearing on the question of irreversibility was that of Hinde, Thorpe, and Vince (1956). They concluded that the following response of coots and moorhens was *not* irreversible. This conclusion was based on the observation that birds trained to follow one stimulus object "would generalize to others throughout practically the whole period in which they would follow at all" (1956, p. 241). But while the finding that young birds will follow different models on successive trials reveals an important aspect of imprinting, it is not directly relevant to the issue of irreversibility as such. Of primary concern is the strength at which the following of a familiar object will be maintained during a number of presentations when experimental conditions remain constant from presentation to presentation. Accordingly, the purpose of the present study is to determine the functional course of the following response over successive practice occasions under the conditions specified.

Method

Subjects and Living Quarters. The eggs of Peking ducks were hatched in an electric incubator and the young transferred to cages having a floor area about 2 ft. square. The back of the cage faced a

wall containing a row of sockets into which were inserted either infrared lamps or electric light bulbs of 60, 100, or 150 w. to maintain the cage at a suitable temperature. In order to eliminate from the animal's visual environment all movement occurring outside the cage, the top and sides were covered with gray cardboard. Since, in addition, each bird was housed individually, the only *moving* stimuli to which any animal was consistently exposed were provided by his own body and by the test object. Food, in the form of Purina Duck Startena supplemented with yeast, and water were always available in the cages.

Apparatus. The apparatus was similar to that employed by Jaynes (1956, 1957) and consisted of an alley 10 ft. long and 2 ft. wide containing a leather belt that passed around two pulleys set 9 ft. apart. The floor of the alley was covered by ¼-in.-mesh hardware cloth. The walls were 2 ft. high and constructed of unpainted white pine. Even illumination of the apparatus was provided by three 150-w. bulbs placed about 6 ft. above the floor of the alley. A green cardboard test object 9 in. long, 4 in. wide, and 4 in. deep was suspended from the belt and made to travel down one side of the alley and up the other. A motor drove the pulleys and was adjusted so that the object moved at a constant speed of 0.4 ft. per sec. Two Standard Electric timers were used to record the number of seconds that the bird spent following the object and also the number of seconds spent in proximity of the object while the latter was not moving. Each clock was connected to a mercury switch set into a panel in front of which *E* stood while observing the animal. Only a small part of *E*'s head was visible to the animal during the period of observation. A Telechron motor, connected to a 7-w. bulb which it lighted every 5 min., made it possible to obtain a record of the animal's performance over each 5-min. interval. White stripes, at distances of 6 in. and 1 ft. from the object, were painted on the belt to facilitate scoring.

Procedure. Within 5 to 10 hr. after hatching, each bird was transferred from the cage to the apparatus for the start of the first test trial. The animal's head was covered during the time it was taken from the cage until it was placed beside the stimulus object. After a period of 30 sec., a mercury switch was thrown, which set the object into motion and started the Telechron motor. The pattern of progression which the object described during the course of a single test trial was as follows: 10-min. run, 5-min. pause, 10-min. run. One test trial per day was given each animal for a period of 15 days. Neither food nor water was available at any time in the apparatus.

Preliminary study indicated that "attachment" to the object included not only following behind it when the object was in motion, but also walking by the side of the object and frequently running ahead and then stopping to wait. A scoring procedure was adopted which appeared to reflect adequately these responses toward the object (such responses henceforth being designated as "following") and which insured a satisfactory degree of intra- and interexperimenter reliability. This procedure involved scoring the animal whenever it was either following the object within a distance of 1 ft. or standing within a distance of 6 in. of any side of the object. A score was recorded for each of the four 5-min. periods that the object was in motion during a trial. For convenience, the sum of these four scores will be referred to as a "moving-score." For the 5-min. period that the object was not in motion, a score was accumulated when the animal was either standing or sitting within a distance of 6 in. from the object. The start of each 5-min. pause occurred when the object was at least 5 ft. from the animal except in those instances in which the animal was actively following immediately before the object stopped. The score accumulated during the stationary period of each trial will be referred to as a "stationary-score." In addition to the scores, protocols of the animal's behavior were recorded for each trial.

Since the purpose of the present experiment was to study the functional course of the following response over successive test occasions, it was desirable to retain for study only those birds which showed evidence of strong following during the early trials. Preliminary work indicated that an animal that did not accumulate a moving-score of at least 60 sec. on the second trial and at least 500 sec. on the third trial, would, on subsequent trials, either fail to follow or continue to accumulate a low score. Therefore, a bird was discarded after the third trial if it did not meet the criterion of at least 60 sec. and 500 sec. on the second and third trials, respectively. Of the 20 birds which were run, 7 were discarded. It was not feasible to base this criterion, even in part, on performance during the first trial since first-trial scores provided a poor index of subsequent behavior.

Results

A median moving-score for each bird was computed for Trials 2 to 8 and for Trials 9 to 15. While each animal showed fairly strong following during Trials 2 to 8, there was a marked decrease in the median number of seconds spent in following during Trials 9 to 15. It is to be noted that every bird included in the study exhibited this

decrease. The Wilcoxin Matched-Pairs Signed-Ranks Test (Siegel, 1956) applied to these data indicates that the probability of this result occurring by chance is considerably less than .01 (two-tailed test).

Figure 1 shows the median moving-score of all animals on each trial. It can be seen that from Trial 3 to Trial 6 following was near maximum strength but that thereafter a progressive decrement in the strength of the response occurred. Activity irrelevant to following (e.g., squatting, pecking at the floor, etc.) began to appear on Trial 6 and increased in frequency during each successive trial. On

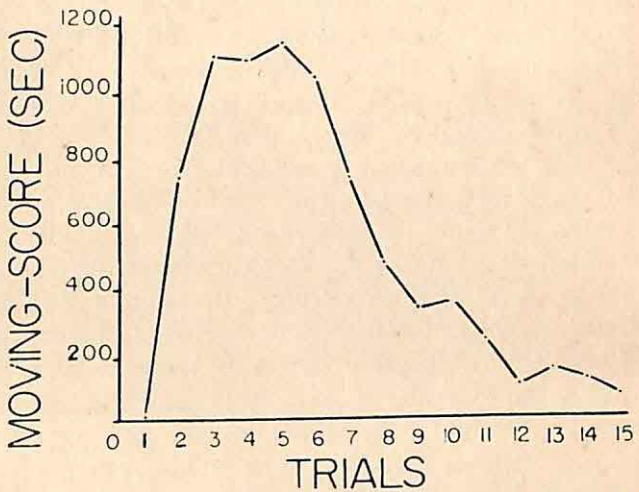

Figure 1. *Median moving-scores as a function of trials.*

the last trial nine animals either did not actively follow or gave less than 200 sec. of following during the 1,200 sec. that the object was in motion. An example of the marked decrease in response strength that occurred is provided by the case of one animal that obtained a moving-score of 1,182 sec. during Trial 5 but a moving-score of only 28 sec. during Trial 15.

It is obvious that, at least with respect to the Peking duck, the present study offers no evidence in support of Lorenz' contention that following is irreversible. Indeed, when neither primary nor secondary reward is associated with the object followed and when experimental conditions tend to remain constant from trial to trial, imprinting appears to be a very unstable phenomenon.

Not only was there a progressive decrease in following during the second half of the test trials, but there was also a decrease in the

number of seconds spent in proximity of the object while the object was not in motion. This is indicated by the fact that the median stationary-scores of all but three animals were lower during Trials 9 to 15 as compared with Trials 2 to 8. The Wilcoxin Matched-Pairs Signed-Ranks Test applied to these data indicates a probability less than .01 (two-tailed test). Figure 2 shows the median stationary-scores of all animals on each trial.

While the tendency of the animal to remain in the vicinity of the object began to decrease at about the same time as did its tendency to follow the object, the decrease reported for the moving-scores was more orderly. Nonetheless, Figure 2 leaves little doubt that the

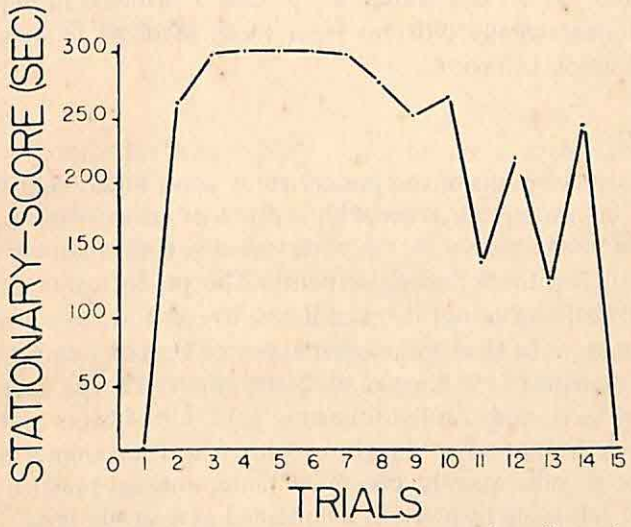

Figure 2. *Median stationary-scores as a function of trials.*

median stationary-scores did wane during the second half of the test series. An example of the extent of this decrease is that on Trial 15 seven animals yielded stationary-scores of less than 10 sec., whereas on Trial 5 the same animals yielded stationary-scores of more than 250 sec.

The protocols that were recorded reveal even more dramatically than do the stationary- and moving-scores the decrease that occurred in the animals' "attachment" to the object during the last half of the test trials. For example, it was observed that many animals began to squat during Trial 7 and for a period of 1 or 2 min. would evince no interest in the object as it passed. This disinterest became progressively more evident so that during the last three or four trials

it was not uncommon for a bird to sit for 5 or 6 min. without attending to the object. During these trials some birds, when sitting in the path of the object, failed even to turn their heads when the object struck them. The same lack of attention was also observed during the stationary period beginning on Trial 8. Not only did many animals fail to approach the object during this period, but some sat or stood facing another direction. This behavior is to be contrasted with the strong and rigid attachment to the object evident during the first half of the test series. Thus, it appears reasonable to conclude that the results obtained during the stationary periods and the periods during which the object was in motion indicate that, with respect to the question of "irreversibility," the processes involved in imprinting are not fundamentally different from those involved in most other types of learned behavior.

Discussion

Although the results of the present study leave little doubt that the effects of imprinting are reversible, a problem arises with respect to reconciling these results with the often repeated contention concerning the "rigidity" of the following response. Thorpe, for example, maintains that "It [imprinting] is, even if not irreversible, extraordinarily stable; far more so than most other types of learning, and this is its first characteristic" (1951, pp. 259–260). Hinde, Thorpe, and Vince, who based their study on the following behavior of coots and moorhens, conclude that when an object with which an animal has had experience is subsequently presented under massed-practice conditions, "the following response is maintained at a steady level" (1956, p. 241). In addition, Lorenz reports that several species were observed to exhibit what he termed "absolute rigidity" (1937, p. 264) with respect to the manner in which following was maintained.

To what can the difference between the present results and those obtained by Lorenz, Thorpe, and others be ascribed? Perhaps the conflict under consideration can be attributed to the fact that while the Peking duck was employed exclusively in the present study, evidence relevant to the problem of "irreversibility" has in the past been based on the performance of other species. It is conceivable that the following of the Peking is atypical in that a rapid decrement in the strength of the response occurs soon after it is established, while in the mallard and muscovy ducks, for example, the behavior does exhibit the "rigidity" to which Lorenz refers. Interesting problems in the phylogeny of behavior would be presented if it were shown that

the following of the Peking differed markedly from the following exhibited by closely related species.

It would appear, however, that at present the question of "stability" might be more readily resolved if attention were directed toward examining the influence of variables which might function either to increase or decrease the strength of the following response over an extended period of time. Investigations of the effect upon following of manipulation of such variables as the auditory and visual characteristics of the test object, the duration of its initial exposure, and the drive conditions of the organism would be likely to yield valuable information concerning the processes involved in imprinting and their relation to those processes involved in the acquisition and extinction of most other types of learned behavior.

Summary

1. An experiment with Peking ducks (*Anas platyrhynchous*) was performed under laboratory conditions in order to determine whether or not the following response is irreversible.

2. The results indicated that the strength of the following response decreased progressively during the last half of the 15-day test series. It was concluded that, with reference to the question of "irreversibility," the processes involved in imprinting are not essentially different from those involved in other types of learned behavior.

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In the previous investigation, Moltz and Rosenblum presented evidence suggesting that the following response is not irreversible. In the investigation below, they attempted to isolate the stimulus conditions which facilitate or retard following. Specifically, they investigated the extent to which preexposure to the experimental situation would affect the origin of the following response.

THE RELATION BETWEEN HABITUATION AND THE STABILITY OF THE FOLLOWING RESPONSE*

Howard Moltz and Leonard A. Rosenblum

Lorenz (1937) has used the term "imprinting" to designate the process by which certain visual stimuli acquire, with extreme rapidity, the capacity to evoke certain "innate" responses. One such response is the persistent following of moving objects by precocial birds shortly after hatching under conditions that do not appear to involve primary reinforcement. Because of the emphasis that Lorenz and others (Hinde, Thorpe, and Vince, 1956; Thorpe, 1951) have placed on the stability of the following response, the first experiment (Moltz and Rosenblum, 1958) in the series examined the functional course of the response in Peking ducks under conditions that involved neither primary nor secondary reward. The results indicated that the strength of the response to a moving object decreased progressively during the last half of a 15-day test series. Since every *S* in the study exhibited a marked decrement in response strength, little doubt remained concerning the "reversibility" of the imprinting process.

In view of the fact that during the entire test series there was neither reinforcement in the usual sense of the term nor any change in the stimulus situation, a problem arose with respect to determining the conditions under which the decrement occurred. Protocols of *S*s' behavior suggested that the number of trials over which strong following was maintained was in part a function of the "anxiety level" of the animal as indexed by the frequency of its distress calls and the extent to which it was startled by extraneous sounds. Stated more precisely, there appeared to be an inverse relation between the degree to which the animal became habituated to the apparatus and the number of seconds spent following the object during the last half of

* From *Journal of Comparative and Physiological Psychology*, Vol. 51, 1958, pp. 658–661. By permission.

the test series. Accordingly, the purpose of the present study was to test the hypothesis that opportunity to become habituated to the apparatus in the absence of the object to which a strong following response had been attached would produce a rapid decrement in the strength of that response.

Method

Subjects. The eggs of Peking ducks were hatched in a forced air incubator in the laboratory. Within approximately 4 hr. after hatching each *S* was housed individually in a cage having a floor area about 2 ft. square. In order to eliminate from the animal's visual environment all movement occurring outside the cage, the sides and top were covered with sheet metal. Food, in the form of Purina Duck Startena supplemented with yeast, and water were always available in the cages.

Apparatus. Since most of the apparatus has been described in a previous report (1958), only the essential details will be presented. The apparatus consisted of an alley and a "neutral box." The alley was 10 ft. by 2 ft. by 2 ft. and constructed of unpainted white pine. Contained in the alley was a leather belt that passed around two pulleys set 9 ft. apart. A green cardboard test object 10 in. long, 4 in. wide, and 4 in. deep was suspended from the belt and made to travel down one side of the alley and up the other. A motor drove the pulleys and was adjusted so that the object moved at a constant speed of 0.4 ft. per second. Two Standard Electric Timers were used to record the number of seconds that *S* spent in proximity of the object while the object was not moving. A Telechron motor connected to a bulb which it lighted every 5 min. made it possible to obtain a record of the animal's performance over each 5-min. interval.

The dimensions of the neutral box were 2 ft. by 2 ft. by 1 ft. With the exception of a smoked glass panel through which illumination was provided, the interior of the neutral box was painted with black and white stripes.

Procedure. Within 5 to 10 hr. after hatching, each bird was transferred from the cage to the alley for the start of the first test trial. After a period of 30 sec. a mercury switch was thrown which set the object into motion and started the Telechron motor. The pattern of progression which the object described during the course of a single test trial was as follows: 10-min. run, 5-min. pause, 10-min. run. One test trial per day was given for ten days. Neither food nor water was available in the apparatus at any time.

Scoring. Previous results (1958) indicated that "attachment" to the object included not only following behind it when the object was in motion, but also walking by and then stopping to wait. A scoring procedure which appeared to reflect adequately these responses (such responses henceforth being designated as "following") involved scoring the animal whenever it was either following the object within a distance of 1 ft. or was standing within a distance of 6 in. of any side of the object. A time score was recorded for each of the four 5-min. periods that the object was in motion during a trial. For convenience, the sum of these four scores will be referred to as a "moving-score." For the 5-min. period that the object was not in motion, a score was accumulated when the animal was either standing or sitting within a distance of 6 in. from the object. The start of each 5-min. pause occurred when the object was at least 5 ft. from the animal except in those instances in which the animal was actively following immediately before the object stopped. The score accumulated during the stationary period of each trial will be referred to as the "stationary-score." In addition to the scores, protocols of the animal's behavior were recorded for each trial.

Subject selection and assignment. Only those birds which showed evidence of strong following during the early trials were selected for study. The criterion employed was identical with that used in a previous experiment and consisted of retaining those animals which had succeeded in accumulating a moving-score of at least 60 sec. on the second trial and at least 500 sec. on the third trial. Of the 27 birds which were run, 11 were discarded at the conclusion of either the second or third trial. The 16 birds retained were then paired on the basis of their scores on Day 3, and one member of each pair was assigned to the experimental treatment and one to the control treatment.

Habituation. Beginning on Day 4 the experimental *S*s were given daily 1-hr. habituation sessions. Each session occurred prior to the usual test trial of the day and consisted simply of placing *S* in the alley in the absence of the object. Except for the fact that the object had been removed, the stimulus conditions present during the habituation sessions were identical with those present during the test trials. At the conclusion of each session *S* was returned to its home cage for 5 min. during which time the object was attached to the belt in preparation for the test trial.

The control *S*s were treated in the same manner as the experimental *S*s except that beginning on Day 4 the control *S*s were placed in the neutral box for 1 hr. each day preceding the regularly scheduled test trial.

Results and Discussion

The matching procedure that was employed resulted in the formation of two groups which were quite similar with respect to their performance on Day 3. The median moving-score of the experimental *S*s on that day was 1,070 sec. as compared with 1,007 sec. for the control *S*s, while the median stationary-score of each group was 300 sec.

Table 1. *Median Scores of Each Animal During Days 4 to 10.*

	Pairs							
	1	2	3	4	5	6	7	8
	Moving-Score							
Experimental	746	223	891	893	40	57	485	228
Control	1,188	564	1,193	916	1,004	757	1,022	753
	Stationary-Score							
Experimental	288	189	300	217	78	0	300	161
Control	300	287	300	267	300	278	300	300

Of primary interest, of course, is the test-trial performance of the experimental *S*s on those days during which the habituation sessions were administered. Table 1 shows the median moving-score and median stationary-score that each animal obtained over the seven-day period (i.e., from Day 4 to Day 10). It is to be noted that in the case of every pair the median moving-score obtained by an experimental *S* was lower than that of its matched control. The Wilcoxin Test applied to these data indicates that the probability of these results occurring by chance is considerably less than .01 (one-tailed test). Additional evidence attesting to the effectiveness of the habituation procedure in reducing the strength of the following response can be obtained by comparing the experimental and control *S*s with respect to their performance prior to and immediately following the first habituation period. It was found that the moving-scores of six experimental *S*s decreased between Days 3 and 4, while the moving-score of only one control animal decreased (the scores of the remaining seven control animals having increased). During Day 5 the strength of the following response exhibited by the experimental *S*s was in every case less than that of the control *S*s. The difference between the groups continued to increase, with the result that during Day 10 four experimental *S*s obtained moving-scores of less than 60 sec. while only one control *S* obtained a moving-score of less than

400 sec. There can be little doubt that opportunity to habituate to the apparatus resulted in a marked reduction in the strength of the following response.

Not only did the experimental *Ss* exhibit a greater decrease in their tendency to follow the object, but they also exhibited a greater decrease in the number of seconds spent in proximity of the object while the object was not in motion. It can be seen in Table 1 that for all but two pairs, the experimental *Ss* obtained a lower median stationary-score than their match controls. The Wilcoxin Test indicates that the probability of this result occurring by chance is less than .025 (one-tailed test). Thus, on the basis of both the stationary and moving scores, it appears reasonable to conclude that opportunity to habituate to the apparatus was important in influencing the strength at which the following response was maintained during the course of the test trials.

Mention should also be made of the protocols that were recorded, for they reveal an aspect of the animal's behavior not reflected directly in its scores. For example, it was observed that, beginning on Day 4, the experimental *Ss* gave fewer "distress calls" than the control *Ss* when they were not near the object and appeared to watch the object less as it traveled around the alley. Furthermore, it was not uncommon for a control animal to become startled and begin to peep loudly for no reason apparent to *E*. This startle behavior was exhibited considerably less often by the experimental *Ss* following the first habituation period. The over-all impression gained was that the experimental *Ss* were neither as "anxious" as the control *Ss* nor as attentive to the object and to the test situation as a whole.

It might be argued that the activity level of the control *Ss* was reduced during their confinement in the neutral box so that during the test trials they were more active than the experimental *Ss* and hence tended to follow the object more closely. This is very unlikely in view of the fact that no consistent difference in activity was observed at any time between the experimental and control *Ss*. Furthermore, neither the moving-scores nor the stationary-scores obtained by the present control *Ss* during Day 4 through Day 10 differed significantly from the scores obtained by the *Ss* of the previous study (1958) for the same period of time. Since both groups were run under identical conditions except for the fact that the present control *Ss* were confined in the neutral box, it is unlikely that neutral-box confinement had any effect on the strength of following.

The results of the present experiment provide a basis for reconciling the often repeated statements concerning the "fixity" or "rigidity" of the following response with the contention of the present investi-

gators that the response is not only reversible but essentially unstable. Thorpe, for example, maintains that the effects of imprinting "can be extraordinarily persistent" (1956, p. 363) and refers to a number of studies in support of this contention. However, close examination of these studies makes it appear likely that in each one the persistence of the response was in part a function of trial-to-trial variability of the stimulus conditions accompanying the presentation of the test object. Consider, for example, the study reported by Hinde, Thorpe, and Vince (1956) which was conducted in an outside pen (24 yd. long) with the test object being pulled by hand along a wire. Under such circumstances it is most unlikely that the visual, auditory, and tactile stimuli provided by the pen as well as the speed of the object remained constant from trial to trial. If it is assumed that constant experimental conditions tend to favor rapid habituation and consequently a rapid decrease in the strength of following, then the "persistence" to which Thorpe refers can, at least in part, be regarded as a function not of some intrinsic characteristic of the following response, but of variation in the stimulus situation in which the behavior was elicited.

Summary

An experiment with Peking ducks was performed to test the hypothesis that opportunity to become habituated to the apparatus in the absence of the object to which a strong following response had been attached would produce a decrement in the strength of the response. The results indicated that the following exhibited by those *S*s placed in the apparatus for 1 hr. prior to the start of a series of daily test trials decreased considerably more rapidly than the following exhibited by *S*s placed in a discriminably different situation for the same period of time.

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2

PERSONALITY

In 1950, a group of psychologists at the University of California published a book entitled *The Authoritarian Personality*. The book described in great detail a massive theoretical effort and a mass of empirical research involved in what was at first conceived as a study of prejudice. But as the study unfolded and its major variable became clarified, it grew into a study of a general and significant pattern of personality traits, and an examination of the functioning of that pattern in the relations of that personality with the other human beings in its environment.

On a number of counts, the appearance of *The Authoritarian Personality* was an historic event. It represented a new and essentially unprecedented marriage of psychoanalytic personality theory with some of the methods of the psychometricians. It also represented one of the earliest and certainly one of the most successful attempts to deal with the borderline area between the traditional study of personality on one hand and the study of social psychology on the other. This blending of a study of a psychoanalytically conceived personality variable with the analysis of such social phenomena as prejudice and orientation to authority was a novel departure, one of considerable significance for psychology.

In this section, we follow the history of authoritarianism from the first presentation of the theoretical background to the first attempts to create an instrument to measure the variable, and then present a specimen array of developments that have occurred since. In these seven selections from the psychological literature, we can see, among other things, what happens when what appears to be a workable and psychologically significant test of a personality variable becomes available to us.

In the first selection, some excerpts from *The Authoritarian Personality* indicate how the variable of authoritarianism—or the interrelated variables that have come to be known as authoritarianism—was dealt with (a) at the level of personality theory, and (b) in terms

of scales designed to measure it. In these relatively theoretical paragraphs, we can see how psychologists have profitably combined some of the subtler general notions about personality dynamics with an advancing knowledge of techniques of measurement. We can see where the concepts of projection and of misplaced aggression lead directly to the formation of items to be used in what is hopefully going to be a sound psychometric device. We can also see in the theoretical sections of the first paper the ways in which modern psychoanalytic theorists tend to adapt, to expand, and to redefine some of the basic concepts of Freudian psychology, and to make them amenable to use in dealing with personality in nonpathological areas of concern.

The second paper in this series examines the question of the individual's general views of family life as these views may relate to the authoritarian personality syndrome. It furnishes a concrete illustration of the general and scientific developments that can occur once a variable is defined and measured. Once the basic variable of authoritarianism—or of anti-democratic tendency—is defined, people begin to think about it and about ways in which it will relate to other variables in other settings. Hence, the meaning of the original variable is explored and examined, sometimes extended, sometimes made more precise, sometimes redefined, sometimes given up as hopeless.

The third and fourth selections here relate authoritarianism to additional realms of behavior. One article studies this variable as it relates to religious fundamentalism, another studies it as it relates to conformity attitudes. Both are illustrative of the proliferation of research that occurs after a significant variable seems adequately defined and successfully measured.

The fifth selection takes the variable of authoritarianism into the area of small groups, and illustrates one approach to phenomena in that burgeoning area of research. This investigation will illustrate not only the relationship between personality factors and social behavior but will show some of the methods employed in the study of small groups.

The sixth selection illustrates the kind of development that frequently occurs in scientific endeavor once the first blush of enthusiasm has passed. When the F scale first became available, it was widely used in many circumstances to test a number of notions about the relation of this variable to many other aspects of behavior. Soon, also, there came efforts to refine the instrument, to improve its basic quality as a measuring device, and to define more precisely the variable with which it purports to deal. The sixth study presented here is a good illustration of this sort of development. It asks whether or not

a number of results reported as having great psychological significance, and tending to relate authoritarianism to other psychological variables, are not merely accounted for by the simple fact that individuals have a "response set" inclining them to say "yes" to almost any question they are asked concerning general social issues. If there is a tendency for individuals to give the experimenter a "yes" answer regardless of the question he asks, then there must be a redefining—or at least a refinement—of the methods through which personality scales are devised and administered. Care must be exercised to avoid confusing a tendency to acquiesce with that to respond in ways that have been labeled authoritarian. The last selection in this section answers at least some of the questions raised in the preceding discussions.

The following abbreviations are used throughout subsequent articles in this section and refer to special paper and pencil tests. The "A-S scale" refers to an instrument designed to measure anti-Semitism; the "E scale" is designed to reveal ethnocentrism; and the "PEC scale" refers to politico-economic conservatism. The "F scale" is used to measure general "fascism," or anti-democratic tendency. We need not be concerned with specific techniques of scoring; it will be enough for the reader to know that high scores on any of these scales are obtained by agreeing strongly with the statements reflecting the general attitude labeled and by disagreeing heartily with statements opposite to the labeled attitude. Thus, a high score on the F scale indicates a tendency to agree strongly with anti-democratic items and to disagree with traditionally democratic ones.

THE AUTHORITARIAN PERSONALITY*

T. W. Adorno, Else Frenkel-Brunswik, Daniel J. Levinson, and R. Nevitt Sanford

The Underlying Theory

The 38 items of the original F scale are shown in Table 1, numbered in the order of their appearance on Form 78. We did not consider starting with hundreds of items chosen more or less at random

and then seeing by trial and error which ones might be associated with A-S and E. For every item there was a hypothesis, sometimes several hypotheses, stating what might be the nature of its connection with prejudice.

A major source of these hypotheses was the research already performed in the present study. Available for the purpose was the following material: results . . . from the A-S, E, and PEC scales; numerous correlates of E derived from questionnaire studies, that is, from responses to factual and short essay questions pertaining to such topics as religion, war, ideal society, and so forth; early results from projective questions; finally, and by far the most important, material from the interviews and the Thematic Apperception Tests. Another important source of items was research in fields allied to the present one in which the authors had previously had a part. Principal among these were several studies performed at the University of California on personality in relation to war morale and ideology (Conrad and Sanford, 1943, 1944; Sanford, 1943; Sanford and Conrad, 1943, 1944; Sanford, Conrad, and Franck, 1946), and researches of the Institute of Social Research such as content analyses of speeches of anti-Semitic agitators and a study on anti-Semitic workers (Adorno, 1946; Institute of Social Research, 1936, 1941, 1944, 1945). Finally, there was the general literature on anti-Semitism and fascism, embracing both empirical and theoretical studies.

It will have been recognized that the interpretation of the material of the present study was guided by a theoretical orientation that was present at the start. The same orientation played the most crucial role in the preparation of the F scale. Once a hypothesis had been formulated concerning the way in which some deep-lying trend in the personality might express itself in some opinion or attitude that was dynamically, though not logically, related to prejudice against outgroups, a preliminary sketch for an item was usually not far to seek: a phrase from the daily newspaper, an utterance by an interviewee, a fragment of ordinary conversation was usually ready at hand. (As will be seen, however, the actual formulation of an item was a technical proceeding to which considerable care had to be devoted.)

As to what kinds of central personality trends we might expect to be the most significant, the major guide, as has been said, was the research which had gone before; they were the trends which, as hypothetical constructs, seemed best to explain the consistency of response on the foregoing scales, and which emerged from the analysis of clinical material as the likely sources of the coherence found in indi-

vidual cases. Most of these trends have been mentioned before, usually when it was necessary to do so in order to give meaning to obtained results. For example, when it was discovered that the anti-Semitic individual objects to Jews on the ground that they violate conventional moral values, one interpretation was that this individual had a particularly strong and rigid adherence to conventional values, and that this general disposition in his personality provided some of the motivational basis for anti-Semitism, and at the same time expressed itself in other ways, e.g., in a general tendency to look down on and to punish those who were believed to be violating conventional values. This interpretation was supported by results from the E and PEC scales, where it was shown that items expressive of conventionalism were associated with more manifest forms of prejudice. Accordingly, therefore, *adherence to conventional values* came to be thought of as a *variable* in the person—something which could be approached by means of scale items of the F type and shown to be related functionally to various manifestations of prejudice. Similarly, a consideration of E-scale results strongly suggested that underlying several of the prejudiced responses was a general disposition to glorify, to be subservient to and remain uncritical toward authoritative figures in the name of some moral authority. Hence, *authoritarianism* assumed the proportions of a variable worthy to be investigated in its own right.

Table 1. *The F Scale: Form 78.*

2. Although many people may scoff, it may yet be shown that astrology can explain a lot of things.
3. America is getting so far from the true American way of life that force may be necessary to restore it.
6. It is only natural and right that women be restricted in certain ways in which men have more freedom.
9. Too many people today are living in an unnatural, soft way; we should return to the fundamentals, to a more red-blooded, active way of life.
10. It is more than a remarkable coincidence that Japan had an earthquake on Pearl Harbor Day, December 7, 1944.
12. The modern church, with its many rules and hypocrisies, does not appeal to the deeply religious person; it appeals mainly to the childish, the insecure, and the uncritical.
14. After we finish off the Germans and Japs, we ought to concentrate on other enemies of the human race such as rats, snakes, and germs.
17. Familiarity breeds contempt.
19. One should avoid doing things in public which appear wrong to others, even though one knows that these things are really all right.

20. One of the main values of progressive education is that it gives the child great freedom in expressing those natural impulses and desires so often frowned upon by conventional middle-class society.
23. He is, indeed, contemptible who does not feel an undying love, gratitude, and respect for his parents.
24. Today everything is unstable; we should be prepared for a period of constant change, conflict, and upheaval.
28. Novels or stories that tell about what people think and feel are more interesting than those which contain mainly action, romance, and adventure.
30. Reports of atrocities in Europe have been greatly exaggerated for propaganda purposes.
31. Homosexuality is a particularly rotten form of delinquency and ought to be severely punished.
32. It is essential for learning or effective work that our teachers or bosses outline in detail what is to be done and exactly how to go about it.
35. There are some activities so flagrantly un-American that, when responsible officials won't take the proper steps, the wide-awake citizen should take the law into his own hands.
38. There is too much emphasis in college on intellectual and theoretical topics, not enough emphasis on practical matters and on the homely virtues of living.
39. Every person should have a deep faith in some supernatural force higher than himself to which he gives total allegiance and whose decisions he does not question.
42. No matter how they act on the surface, men are interested in women for only one reason.
43. Sciences like chemistry, physics, and medicine have carried men very far, but there are many important things that can never possibly be understood by the human mind.
46. The sexual orgies of the old Greeks and Romans are nursery school stuff compared to some of the goings-on in this country today, even in circles where people might least expect it.
47. No insult to our honor should ever go unpunished.
50. Obedience and respect for authority are the most important virtues children should learn.
53. There are some things too intimate or personal to talk about even with one's closest friends.
55. Although leisure is a fine thing, it is good hard work that makes life interesting and worthwhile.
56. After the war, we may expect a crime wave; the control of gangsters and ruffians will become a major social problem.
58. *What* a man does is not so important so long as he does it well.
59. Human nature being what it is, there will always be war and conflict.

60. Which of the following are the most important for a person to have or to be?

Mark X the three most important:

artistic and sensuous
popular, good personality
drive, determination, will power
broad, humanitarian social outlook
neatness and good manners
sensitivity and understanding
efficiency, practicality, thrift
intellectual and serious
emotional expressiveness, warmth, intimacy
kindness and charity

65. It is entirely possible that this series of wars and conflicts will be ended once and for all by a world-destroying earthquake, flood, or other catastrophe.
66. Books and movies ought not to deal so much with the sordid and seamy side of life; they ought to concentrate on themes that are entertaining or uplifting.
67. When you come right down to it, it's human nature never to do anything without an eye to one's own profit.
70. To a greater extent than most people realize, our lives are governed by plots hatched in secret by politicians.
73. Nowadays when so many different kinds of people move around so much and mix together so freely, a person has to be especially careful to protect himself against infection and disease.
74. What this country needs is fewer laws and agencies, and more courageous, tireless, devoted leaders whom the people can put their faith in.
75. Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped.
77. No sane, normal, decent person could ever think of hurting a close friend or relative.

In the same way, a number of such variables were derived and defined, and they, taken together, made up the basic content of the F scale. Each was regarded as a more or less central trend in the person which, in accordance with some dynamic process, expressed itself on the surface in ethnocentrism as well as in diverse psychologically related opinions and attitudes. These variables are listed below, together with a brief definition of each.

a. *Conventionalism.* Rigid adherence to conventional, middle-class values.
b. *Authoritarian submission.* Submissive, uncritical attitude toward idealized moral authorities of the ingroup.
c. *Authoritarian aggression.* Tendency to be on the lookout for, and to condemn, reject, and punish people who violate conventional values.

d: *Anti-intraception*. Opposition to the subjective, the imaginative, the tender-minded.

e. *Superstition and stereotypy*. The belief in mystical determinants of the individual's fate; the disposition to think in rigid categories.

f. *Power and "toughness."* Preoccupation with the dominance-submission, strong-weak, leader-follower dimension; identification with power figures; overemphasis upon the conventionalized attributes of the ego: exaggerated assertion of strength and toughness.

g. *Destructiveness and cynicism*. Generalized hostility, vilification of the human.

h. *Projectivity*. The disposition to believe that wild and dangerous things go on in the world; the projection outwards of unconscious emotional impulses.

i. *Sex*. Exaggerated concern with sexual "goings-on."

These variables were thought of as going together to form a single syndrome, a more or less enduring structure in the person that renders him receptive to antidemocratic propaganda. One might say, therefore, that the F scale attempts to measure the potentially antidemocratic personality. This does not imply that *all* the features of this personality pattern are touched upon in the scale, but only that the scale embraces a fair sample of the ways in which this pattern characteristically expresses itself. Indeed, as the study went on, numerous additional features of the pattern, as well as variations within the over-all pattern, suggested themselves—and it was regretted that a second F scale could not have been constructed in order to carry these explorations further. It is to be emphasized that one can speak of personality here only to the extent that the coherence of the scale items can be better explained on the ground of an inner structure than on the ground of external association.

The variables of the scale may be discussed in more detail, with emphasis on their organization and the nature of their relations to ethnocentrism. As each variable is introduced, the scale items deemed to be expressive of it are presented. It will be noted, as the variables are taken up in turn, that the same item sometimes appears under more than one heading. This follows from our approach to scale construction. In order efficiently to cover a wide area it was necessary to formulate items that were maximally rich, that is, pertinent to as much as possible of the underlying theory—hence a single item was sometimes used to represent two, and sometimes more, different ideas. It will be noted also that different variables are represented by different numbers of items. This is for the reason that the scale was designed

with first attention to the whole pattern into which the variables fitted, some with more important roles than others.

It is a well-known hypothesis that susceptibility to fascism is more characteristically a middle-class phenomenon, that it is "in the culture" and, hence, that those who conform the most to this culture will be the more prejudiced. Items referring to the holding of conventional values were included in order to gather data bearing on this hypothesis. Many of the early findings of the present study, however, gave evidence that the matter was not quite so simple. The correlation between conventional values and prejudice seemed to be positive but not very high; whereas unconventional people tended to be free of prejudice, it was clear that some conventional people were prejudiced while others were not. It seemed that, among the conventional group, what might make the difference was the deeper source of the conventionality, or rather the type of broader personality structure within which it had a functional role. If the adherence to conventional values was an expression of a fully established individual conscience, then we should expect no necessary connection between these values and antidemocratic potential. The same standards which render the individual easily offended by what he conceives to be the morally loose behavior of unassimilated minority group members or of "lower-class" people, would—if they are well internalized—cause him to resist the violence and delinquency which characterize the advanced stages of fascism. If, on the other hand, adherence to conventional values is determined by contemporary external social pressure, if it is based upon the individual's adherence to the standards of the collective powers with which he, for the time being, is identified, then we should expect a close association with antidemocratic receptivity. It is this latter state of affairs that we wish to call conventionalism—and to distinguish from mere acceptance of conventional values. The conventionalistic individual could in good conscience follow the dictates of the external agency wherever they might lead him and, moreover, he would be capable of totally exchanging one set of standards for another quite different one—as in a conversion from official Communism to Catholicism.

The scale items listed under *Conventionalism* (refer to the following items on the F scale: 12, 19, 38, 55, 58, 60) afford the subject an opportunity to reveal whether or not his adherence to conventional values is of the rigid, absolutist character just described. For example, this would seem to be indicated by a mark of +3 on the item, "Obedience and respect for authority are the most important virtues children

should learn." However, a sound decision on this matter would depend on the individual's responses to items in the other categories. For example, extreme conventionalism going with a strong inclination to punish those who violate conventional values is a different thing from conventional values associated with a philosophy of live and let live. In other words, the meaning of a high score on this variable, as on any of the others, is to be known from the broader context within which it occurs.

Submission to authority, desire for a strong leader, subservience of the individual to the state, and so forth, have so frequently and, as it seems to us, correctly been set forth as important aspects of the Nazi creed that a search for correlates of prejudice had naturally to take these attitudes into account. These attitudes have indeed been so regularly mentioned in association with anti-Semitism that it was particularly difficult to formulate items that would express the underlying trend and still be sufficiently free of logical or direct relations to prejudice—and we cannot claim to have been entirely successful. Direct references to dictatorship and political figures were avoided for the most part, and the main emphasis was on obedience, respect, rebellion, and relations to authority in general. Authoritarian submission was conceived of as a very general attitude that would be evoked in relation to a variety of authority figures—parents, older people, leaders, supernatural power, and so forth.

The attempt was made to formulate the items (refer to items number 20, 23, 32, 39, 43, 50, 74, 77) in such a way that agreement with them would indicate not merely a realistic, balanced respect for valid authority but an exaggerated, all-out, emotional need to submit. This would be indicated, it seemed, by agreement that obedience and respect for authority were the *most important* virtues that children should learn, that a person should *obey without question* the decisions of a supernatural power, and so forth. It was considered that here, as in the case of conventionalism, the subservience to external agencies was probably due to some failure in the development of an inner authority, i.e., conscience. Another hypothesis was that authoritarian submission was commonly a way of handling ambivalent feelings toward authority figures: underlying hostile and rebellious impulses, held in check by fear, lead the subject to overdo in the direction of respect, obedience, gratitude, and the like.

It seems clear that authoritarian submission by itself contributes largely to the antidemocratic potential by rendering the individual particularly receptive to manipulation by the strongest external powers. The immediate connection of this attitude with ethnocentrism

has been suggested in earlier chapters: hostility against ingroup authorities, originally the parents, has had to be repressed; the "bad" aspects of these figures—that they are unfair, self-seeking, dominating —are then seen as existing in outgroups, who are charged with dictatorship, plutocracy, desire to control, and so forth. And this displacement of negative imagery is not the only way in which the repressed hostility is handled; it seems often to find expression in authoritarian aggression.

The individual who has been forced to give up basic pleasures and to live under a system of rigid restraints, and who therefore feels put upon, is likely not only to seek an object upon which he can "take it out" but also to be particularly annoyed at the idea that another person is "getting away with something." Thus, it may be said that the present variable represents the sadistic component of authoritarianism just as the immediately foregoing one represents its masochistic component. It is to be expected, therefore, that the conventionalist who cannot bring himself to utter any real criticism of accepted authority will have a desire to condemn, reject, and punish those who violate these values. As the emotional life which this person regards as proper and a part of himself is likely to be very limited, so the impulses, especially sexual and aggressive ones, which remain unconscious and ego-alien are likely to be strong and turbulent. Since in this circumstance a wide variety of stimuli can tempt the individual and so arouse his anxiety (fear of punishment), the list of traits, behavior patterns, individuals, and groups that he must condemn grows very long indeed. It has been suggested before that this mechanism might lie behind the ethnocentric rejection of such groups as zootsuiters, foreigners, other nations; it is here hypothesized that this feature of ethnocentrism is but a part of a more general tendency to punish violators of conventional values: homosexuals, sex offenders, people with bad manners, etc. Once the individual has convinced himself that there are people who ought to be punished, he is provided with a channel through which his deepest aggressive impulses may be expressed, even while he thinks of himself as thoroughly moral. If his external authorities, or the crowd, lend their approval to this form of aggression, then it may take the most violent forms, and it may persist after the conventional values, in the name of which it was undertaken, have been lost from sight.

One might say that in authoritarian aggression (refer to items 6, 23, 31, 47, 75) hostility that was originally aroused by and directed toward ingroup authorities is *displaced* onto outgroups. This mechanism is superficially similar to but essentially different from a process

that has often been referred to as "scapegoating." According to the latter conception, the individual's aggression is aroused by frustration, usually of his economic needs; and then, being unable due to intellectual confusion to tell the real causes of his difficulty, he lashes out about him, as it were, venting his fury upon whatever object is available and not too likely to strike back. While it is granted that this process has a role in hostility against minority groups, it must be emphasized that according to the present theory of displacement, the authoritarian *must*, out of an inner necessity, turn his aggression against outgroups. He must do so because he is psychologically unable to attack ingroup authorities, rather than because of intellectual confusion regarding the source of his frustration. If this theory is correct, then authoritarian aggression and authoritarian submission should turn out to be highly correlated. Furthermore, this theory helps to explain why the aggression is so regularly justified in moralistic terms, why it can become so violent and lose all connection with the stimulus which originally set it off.

Readiness to condemn other people on moral grounds may have still another source: it is not only that the authoritarian must condemn the moral laxness that he sees in others, but he is actually driven to see immoral attributes in them whether this has a basis in fact or not. This is a further device for countering his own inhibited tendencies; he says to himself, as it were: "I am not bad and deserving of punishment, he is." In other words the individual's own unacceptable impulses are *projected* onto other individuals and groups who are then rejected. Projectivity as a variable is dealt with more fully below.

Conventionalism, authoritarian submission, and authoritarian aggression all have to do with the moral aspect of life—with standards of conduct, with the authorities who enforce these standards, with offenders against them who deserve to be punished. We should expect that, in general, subjects who score high on one of these variables will score high on the others also, inasmuch as all three can be understood as expressions of a particular kind of structure within the personality. The most essential feature of this structure is a lack of integration between the moral agencies by which the subject lives and the rest of his personality. One might say that the conscience or superego is incompletely integrated with the self or ego, the ego here being conceived of as embracing the various self-controlling and self-expressing functions of the individual. It is the ego that governs the relations between self and outer world, and between self and deeper layers of the personality; the ego undertakes to regulate im-

pulses in a way that will permit gratification without inviting too much punishment by the superego, and it seeks in general to carry out the activities of the individual in accordance with the demands of reality. It is a function of the ego to make peace with conscience, to create a larger synthesis within which conscience, emotional impulses, and self operate in relative harmony. When this synthesis is not achieved, the superego has somewhat the role of a foreign body within the personality, and it exhibits those rigid, automatic, and unstable aspects discussed above.

There is some reason to believe that a failure in superego internalization is due to weakness in the ego, to its inability to perform the necessary synthesis, i.e., to integrate the superego with itself. Whether or not this is so, ego weakness would seem to be a concomitant of conventionalism and authoritarianism. Weakness in the ego is expressed in the inability to build up a consistent and enduring set of moral values within the personality; and it is this state of affairs, apparently, that makes it necessary for the individual to seek some organizing and coordinating agency outside of himself. Where such outside agencies are depended upon for moral decisions one may say that the conscience is externalized.

Although conventionalism and authoritarianism might thus be regarded as signs of ego weakness, it seemed worthwhile to seek other, more direct, means for estimating this trend in personality, and to correlate this trend with the others. Ego weakness would, it seemed, be expressed fairly directly in such phenomena as opposition to introspection, in superstition and stereotypy, and in overemphasis upon the ego and its supposed strength. The following three variables deal with these phenomena.

Intraception is a term introduced by Murray (1938) to stand for "the dominance of feelings, fantasies, speculation, aspirations—an imaginative, subjective human outlook." The opposite of intraception is extraception, "a term that describes the tendency to be determined by concrete, clearly observable, physical conditions (tangible, objective facts)." The relations of intraception/extraception to ego weakness and to prejudice are probably highly complex, and this is not the place to consider them in detail. It seems fairly clear, however, that *anti*-intraception, an attitude of impatience with and opposition to the subjective and tender-minded, might well be a mark of the weak ego. The extremely anti-intraceptive individual (refer to items 28, 38, 53, 55, 58, 66) is afraid of thinking about human phenomena because he might, as it were, think the wrong thoughts; he is afraid of genuine feeling because his emotions might get out

of control. Out of touch with large areas of his own inner life, he is afraid of what might be revealed if he, or others, should look closely at himself. He is therefore against "prying," against concern with what people think and feel, against unnecessary "talk"; instead he would keep busy, devote himself to practical pursuits, and instead of examining an inner conflict, turn his thoughts to something cheerful. An important feature of the Nazi program, it will be recalled, was the defamation of everything that tended to make the individual aware of himself and his problems; not only was "Jewish" psychoanalysis quickly eliminated but every kind of psychology except aptitude testing came under attack. This general attitude easily leads to a devaluation of the human and an overevaluation of the physical object; when it is more extreme, human beings are looked upon as if they were physical objects to be coldly manipulated—even while physical objects, now vested with emotional appeal, are treated with loving care.

Superstitiousness, the belief in mystical or fantastic external determinants of the individual's fate, and stereotypy, the disposition to think in rigid categories, have been mentioned so frequently that they need little discussion here. A question that must be raised concerns the relations of these trends to general intelligence—and the relations of intelligence to ethnocentrism. Probably superstition and stereotypy tend to go with low intelligence, but low intelligence appears to be correlated with ethnocentrism to only a slight degree. It appears likely that superstition and stereotype embrace, over and above the mere lack of intelligence in the ordinary sense, certain dispositions in thinking which are closely akin to prejudice, even though they might not hamper intelligent performance in the extraceptive sphere. These dispositions can be understood, in part at least, as expressions of ego weakness. Stereotypy is a form of obtuseness particularly in psychological and social matters. It might be hypothesized that one reason why people in modern society—even those who are otherwise "intelligent" or "informed"—resort to primitive, oversimplified explanations of human events is that so many of the ideas and observations needed for an adequate account are not allowed to enter into the calculations: because they are affect-laden and potentially anxiety-producing, the weak ego cannot include them within its scheme of things. More than this, those deeper forces within the personality which the ego cannot integrate with itself are likely to be projected onto the outer world; this is a source of bizarre ideas concerning other people's behavior and concerning the causation of events in nature.

Superstitiousness indicates a tendency to shift responsibility from within the individual onto outside forces beyond one's control; it

indicates that the ego might already have "given up," that is to say, renounced the idea that it might determine the individual's fate by overcoming external forces. It must, of course, be recognized that in modern industrial society the capacity of the individual to determine what happens to himself has *actually* decreased, so that items referring to external causation might easily be realistic and hence of no significance for personality. It seemed necessary, therefore, to select items that would express ego weakness in a nonrealistic way by making the individual's fate dependent on more or less fantastic factors.

This variable (power and toughness, i.e., items 9, 35, 47, 70, 74) refers, in the first place, to overemphasis upon the conventionalized attributes of the ego. The underlying hypothesis is that overdisplay of toughness may reflect not only the weakness of the ego but also the magnitude of the task it has to perform, that is to say, the strength of certain kinds of needs which are proscribed in the subject's culture. The relations of ego and impulse, then, are at least as close as the relations of ego and conscience. Nevertheless, they may be separated for purposes of analysis, and other variables of the F scale refer to the deeper strata of the individual's emotional life.

Closely related to the phenomenon of exaggerated toughness is something which might be described as a "power complex." Most apparent in its manifestations is overemphasis on the power motif in human relationships; there is a disposition to view all relations among people in terms of such categories as strong-weak, dominant-submissive, leader-follower, "hammer-anvil." And it is difficult to say with which of these roles the subject is the more fully identified. It appears that he wants to get power, to have it and not to lose it, and at the same time is afraid to seize and wield it. It appears that he also admires power in others and is inclined to submit to it—and at the same time is afraid of the weakness thus implied. The individual whom we expected to score high on this cluster readily identifies himself with the "little people," or "the average," but he does so, it seems, with little or no humility, and he seems actually to think of himself as strong or to believe that he can somehow become so. In short, the power complex contains elements that are essentially contradictory, and we should expect that sometimes one feature and sometimes another will predominate at the surface level. We should expect that both leaders and followers will score high on this variable, for the reason that the actual role of the individual seems to be less important than his concern that leader-follower relations shall obtain. One solution which such an individual often achieves is that of alignment

with power figures, an arrangement by which he is able to gratify both his need for power and his need to submit. He hopes that by submitting to power he can participate in it. For example, a man who reports that the most awe-inspiring experience for him would be "to shake hands with the President" probably finds his gratification not in submission alone but in the idea that some of the big man's power has, as it were, rubbed off onto him, so that he is a more important person for having "shook his hand" or "known him" or "been there." The same pattern of gratification can be obtained by acting in the role of "the lieutenant" or by functioning in a middle position in some clearly structured hierarchy where there is always somebody above and somebody below.

The power complex has immediate relations with certain aspects of ethnocentrism. An individual who thinks of most human relations in such terms as strong versus weak is likely to apply these categories in his thinking about ingroups and outgroups, e.g., to conceive of "superior" and "inferior races." And one of the psychologically least costly devices for attaining a sense of superiority is to claim it on the basis of membership in a particular "race."

According to the present theory, the antidemocratic individual, because he has had to accept numerous externally imposed restrictions upon the satisfaction of his needs, harbors strong underlying aggressive impulses. As we have seen, one outlet for this aggression is through displacement onto outgroups leading to moral indignation and authoritarian aggression. Undoubtedly this is a very serviceable device for the individual; yet, the strong underlying aggression seems at the same time to express itself in some other way—in a nonmoralized way. It was assumed, of course, that primitive aggressive impulses are rarely expressed with complete directness by adults, but must instead be sufficiently modified, or at least justified, so that they are acceptable to the ego.

The present variable, then, refers to rationalized, ego-accepted, nonmoralized aggression (destructiveness and cynicism, i.e., see items 3, 9, 14, 17, 24, 30, 35, 42, 56, 59, 67). The supposition was that a subject could express this tendency by agreeing with statements which though thoroughly aggressive were couched in such terms as to avoid his moral censorship. Thus, some items offered justifications for aggressions, and were formulated in such a way that strong agreement would indicate that the subject needed only slight justification in order to be ready for all-out aggression. Other items dealt with contempt for mankind, the theory being that here the hostility is so generalized, so free of direction against any particular object, that the

individual need not feel accountable for it. Still another guiding conception was that a person can most freely express aggression when he believes that everybody is doing it and, hence, if he wants to be aggressive, he is disposed to believe that everybody *is* doing it, e.g., that it is "human nature" to exploit and to make war upon one's neighbors. It goes without saying that such undifferentiated aggressiveness could easily, by means of propaganda, be directed against minority groups, or against any group the persecution of which was politically profitable.

The mechanism of projection (items 46, 56, 65, 70, 73) was mentioned in connection with authoritarian aggression; the suppressed impulses of the authoritarian character tend to be projected onto other people who are then blamed out of hand. Projection is thus a device for keeping id drives ego-alien, and it may be taken as a sign of the ego's inadequacy in carrying out its function. Indeed, in one sense most of the items of the F scale are projective: they involve the assumption that judgments and interpretations of fact are distorted by psychological urges. The subject's tendency to project is utilized, in the present group of items, in an attempt to gain access to some of the deeper trends in his personality. If the antidemocratic individual is disposed to see in the outer world impulses which are suppressed in himself, and we wish to know what these impulses are, then something may be learned by noting what attributes he most readily, but unrealistically, ascribes to the world around him. If an individual insists that someone has hostile designs on him, and we can find no evidence that this is true, we have good reason to suspect that our subject himself has aggressive intentions and is seeking by means of projection to justify them. A notorious example is Father Coughlin's referring to anti-Semitism as a "defense mechanism," i.e., a protection of Gentiles against the supposed aggressive designs of the Jews. Similarly, it seemed that the greater a subject's preoccupation with "evil forces" in the world, as shown by his readiness to think about and to believe in the existence of such phenomena as wild erotic excesses, plots and conspiracies, and danger from natural catastrophes, the stronger would be his own unconscious urges of both sexuality and destructiveness.

Concern with overt sexuality is represented in the F scale by four items (31, 42, 46, 75), two of which have appeared in connection with authoritarian aggression and one other as an expression of projectivity. This is an example of the close interaction of all the present variables; since taken together they constitute a totality, it follows that a single question may pertain to two or more aspects

of the whole. For purposes of analysis, sex may be abstracted from the totality as well as any of the other variables. Which of these variables are most basic must be determined by clinical study. In any case, it seemed that countercathexis (repression, reaction formation, projection) of sexual wishes was well qualified for special study.

The present variable is conceived of as ego-alien sexuality. A strong inclination to punish violators of sex mores (homosexuals, sex offenders) may be an expression of a general punitive attitude based on identification with ingroup authorities, but it also suggests that the subject's own sexual desires are suppressed and in danger of getting out of hand. A readiness to believe in "sex orgies" may be an indication of a general tendency to distort reality through projection, but sexual content would hardly be projected unless the subject had impulses of this same kind that were unconscious and strongly active. The three items pertaining to the punishment of homosexuals and of sex criminals and to the existence of sex orgies may, therefore, give some indication of the strength of the subject's unconscious sexual drives.

Conclusions

The attempt to construct a scale that would measure prejudice without appearing to have this aim and without mentioning the name of any minority group seems to have been fairly successful. The correlation of .75 between the E and the F scale means that scores on the former may be predicted with fair accuracy from scores on the latter. That we have achieved the second purpose underlying the F scale—to construct an instrument that would yield an estimate of fascist receptivity at the personality level—has still to be demonstrated.

Numerous variables in areas not ordinarily covered by studies of political, economic, and social ideology have been attacked directly; and they have been found to form a syndrome and to correlate significantly with antidemocratic trends in areas covered by the A-S, E, and PEC scales. This means, at the least, that the conception of a potentially fascistic pattern can be considerably extended, and that the hypothesis of central personality dispositions which give rise to this pattern is lent considerable support. It remains to be shown conclusively, however, that the variables with which the F scale has been concerned are, in reality, variables of personality. If it is true that they are, then they will be exposed directly as we consider findings from procedures designed especially for the investigation of personality

and in which the individual is allowed to express himself spontaneously. If our major hypothesis is correct, then clinical investigations should not only substantiate the findings of the present chapter, but give a deeper understanding of the potentially fascistic pattern and of its development within the individual.

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Basing their investigation upon the original study of the authoritarian-personality syndrome, Daniel J. Levinson and Phyllis E. Huffman here relate authoritarianism to the individual's general view—or ideology—of family structure and functioning. Do those who score high on the F scale

differ significantly from those who score low on the F scale in what they believe and, presumably, do about life in the family setting? Clearly, this is an attempt to see if the variable of authoritarianism relates in fact to other variables with which, in theory, it should relate.

Does the individual who scores high on the F scale also have a hierarchical conception of relationships within the family? Does he believe in the pervasive importance of obedience in child rearing? Does he believe that because "men are men and women are women" they should therefore stick to the traditional sex roles in the family setting? Does he hold other beliefs about family life that seem psychologically consonant with the general tenor of the attitudes and beliefs that lie at the core of the authoritarian syndrome? Levinson and Huffman attempt to get at the answers to some of these questions.

TRADITIONAL FAMILY IDEOLOGY AND ITS RELATION TO PERSONALITY*

Daniel J. Levinson and Phyllis E. Huffman

The Problem

This paper is concerned with current ways of thinking, or *ideological orientations,* regarding family structure and functioning. These orientations can be labeled and grouped in many ways, none of which will do full justice to their individual distinctiveness. In the present study they are placed along an autocratic-democratic continuum. The autocratic extreme is represented by various forms of "traditional family ideology"—viewpoints which involve an hierarchical conception of familial relationships, emphasis on discipline in child-rearing, sharp dichotomization of sex roles, and the like. The democratic orientations tend to decentralize authority within the family, to seek greater equality in husband-wife and parent-child relationships, and to maximize individual self-determination. The terms "democratic" and "autocratic" refer not to a simple dichotomy but to antipodes of a broad and internally complex continuum. Moreover, there are important qualitative variations within each ideological camp and there are numerous "intermediate" positions. The present study focuses only on certain gross differences between the two extreme positions and is therefore only a first step in the analysis of the total continuum.

* From *Journal of Personality,* Vol. 23, 1954–55, pp. 251–273. By permission.

This study has one technological and several theoretical aims. The former involves the construction of a device—the *Traditional Family Ideology* (TFI) *Scale*—for assessing an individual's position on the democratic-autocratic continuum. The theoretical aims involve the testing of several hypotheses stemming directly from the research of Adorno, Frenkel-Brunswik, Levinson, and Sanford (1950) and from the earlier work of Fromm (1936, 1941) and Reich (1946). These hypotheses are:

(a) *That individuals are relatively consistent in their tendency to take a democratic or an autocratic stand on the diverse issues of family life.* Determination of the reliability and internal consistency of the TFI Scale will provide a partial testing of this hypothesis.

(b) *That individuals are relatively consistent in their tendency to take a democratic or an autocratic stand in various ideological spheres;* in other words, that an individual's family ideology is related to, and enmeshed within, a broader orientation toward social institutions generally. We predict that the TFI Scale will correlate significantly, though by no means perfectly, with measures of "ethnocentrism" (autocracy regarding intergroup relations) and "religious conventionalism" (an autocratic religious orientation).

(c) *That the democratic-autocratic continuum of family ideology is associated with the equalitarian-authoritarian continuum of personality.* We hold that a man's approach to any aspect of organized social life, such as the family, is intimately bound up with his conception of self, his modes of handling anxiety, his character traits—in short, with his approach to himself and the world in general. Concretely, we predict that TFI will correlate significantly with the F Scale, a crude measure of authoritarianism that has already yielded significant correlations with measures of ethnocentrism (Adorno *et al.*, 1950) and of autocratic religious ideology (Alven, 1950).

Construction of the TFI Scale

The construction of the Traditional Family Ideology (TFI) Scale followed lines similar to those employed in the "authoritarian personality" research (Adorno *et al.*, 1950). The analysis of family ideology proceeded at two levels, which then converged in the formulation of concrete scale items. At what may be called the *institutional* level we were concerned with the external referent of the ideology, namely, the family as a social system comprising various roles and statuses and having various functions. The scale items deal with the following aspects of the family system. (a) The male roles of "hus-

band" and "father," with special reference to the definition of "masculinity." (b) The female roles of "wife" and "mother," with special reference to the definition of "femininity." (c) Husband-wife and parent-child relationships, with attention to problems of authority and the distribution of power and responsibility; specific child-rearing practices and attitudes. (d) General values, expectations, and moral pressures, especially those relating to sex, aggression, and interstatus relationships. While the foregoing headings obviously overlap, they have the heuristic value of providing a framework for scale construction, and they indicate in a rough way the universe of issues sampled by the scale.

The problem for *psychological* analysis was to formulate some of the chief personality characteristics expressed in the autocratic and democratic orientations as these are currently manifested in the realm of family ideology. The psychological concepts and hypotheses used here were taken from the earlier study of authoritarian personality (Adorno *et al.,* 1950), particularly Frenkel-Brunswik's analysis of interview material dealing with childhood recollections and family relationships. Indeed, the TFI Scale is essentially an application of ideas gained originally from clinical interviews.

Of the numerous aspects of the authoritarian personality syndrome, five were selected as bases for the construction of the Traditional Family Ideology Scale because they seemed to represent focal points of meaning and affect within the sphere of family ideology. They are: conventionalism, authoritarian submission, exaggerated masculinity and femininity, extreme emphasis on discipline, and moralistic rejection of impulse life. These five characteristics were not regarded as being either conceptually or statistically independent, and they therefore were not translated into five mutually exclusive subscales. Instead, item formulation was guided above all by a principle of multiple function: each item was intended, on the one hand, to be *phenotypically* simple, casual, even folksy, and on the other hand, to represent as many as possible of the hypothesized genotypic variables.

This approach differs both in method and in theoretical orientation from that advocated by Guttman (in Stouffer *et al.,* 1950) who prefers to start by seeking statistically pure, elementary factors out of which more complex attitudinal structures might ultimately be constructed. Our approach gives priority to establishing (and crudely measuring) a complex orientation; it leaves for further analysis the determination of specific unidimensional components and their organization.

The distinction between the more generalized, "conceptual" definition of each variable and the specific expressions of it in concrete ideas and scale items has a further implication deserving of special emphasis. We propose that these and several other variables, *as conceptually defined,* serve as a well-nigh universal genotypic formulation of the authoritarian syndrome. There are, of course, variations in emphasis and patterning, but these variables are thought to be the chief raw materials out of which practically all authoritarian structures are built. However, we are *not* committed to the hypothesis that the TFI Scale is necessarily adequate, or even applicable, outside the American middle class. Like any other scale, it is bound, in some degree, to the particular traditions, social pressures, range of available ideological alternatives, and idiomatic meanings, of the social groupings for which it was originally constructed. The extent of its applicability is thus essentially an empirical problem.

Let us now consider the major psychological variables in turn. While detailed documentation for the nature and operation of these variables will not be given, it may be found in Adorno *et al.* (1950), Bjorklund and Israel (1951), Dicks (1950), Frenkel-Brunswik (1949), Fromm *et al.* (1936), Fromm (1941), and Reich (1946).

Conventionalism. This may be defined as rigid adherence to the conventional values of a given ethnic-class grouping. This concept refers not merely to the content of the values but, more important, to the rigidity with which they are held. In the present, middle-class oriented study, the relevant values are those emphasizing conformity, cleanliness, practicality, upward status mobility, and the like. True conventionalism involves more than simple adherence to class values. It involves holding them to the exclusion of other values which place personal conscience above acceptance of group normative pressures and individuality above conformity. Furthermore, there is a punitive, totalitarian outlook toward transgressors. The conventionalist cannot accept value deviations in his own groups nor value diversity in society as a whole. He shows greater concern with "stamping out evil impulses" than with facilitating personal expression and happiness. Finally, conventionalism is the attribute of a conscience which is poorly internalized and in a sense ego-alien. It makes the person particularly dependent on the immediate external authority to whom he turns for simple, morally proper definitions of what is required in each situation.

Authoritarian Submission. This may be defined as idealization of, and submissiveness toward, the ingroup moral authorities. A universal

theme in authoritarianism concerns the relations between lower and higher status levels (follower-leader, child-parent, wife-husband). Obedience to authority becomes a cardinal virtue; it is as much the duty of the authority to dominate as the duty of the subordinate to submit, and the infallibility of the authority must be questioned by neither. In this conception, social structures are necessarily hierarchical and interpersonal relationships are heavily influenced by issues of status.

Exaggerated Masculinity and Femininity. One of the more universal aspects of authoritarianism is the tendency toward rigid dichotomization of male and female sex roles. "Masculinity" and "femininity" are conceived of as opposites, with no overlapping of traits. These dichotomous conceptions have the function of maintaining male dominance and female subservience.[1] The "real" man is master in the home, a good provider, and firm disciplinarian, one who tolerates no weakness in himself or others. His predominant personal traits are ruggedness, determination, assertiveness, and will power.

The corresponding feminine ideal is that of the "sweet," submissive, morally controlled woman who knows and keeps her place "in the home." An essential part of femininity, according to this conception, is the relative absence of aggressiveness, achievement aspirations, and sensuality. Patriarchal conceptions of masculinity and femininity converge in the "double standard," the application of different standards to men and to women. The double standard, combined with the assumption that men are more "animal" than women, leads to the idea that women more than men are responsible for the maintenance of traditional sexual morality. A corollary of this is the idea that the woman is more to blame than the man when they jointly engage in illicit sexual activities.

In order for males to develop and value this type of masculine character, and for females to adopt this pattern of femininity, each sex must somehow inhibit or deflect many tendencies maturationally available to them. In particular, boys must erect defenses against passive, dependent, aesthetic and other wishes which are defined as feminine and, hence, as signs of a "sissy" or a "queer" when they

[1] The criticism may be raised that, as a matter of sociological fact, the American family is in many respects matriarchal, and that the traditional pattern of male dominance is being reversed. We suggest, nevertheless, that however much *functional* matriarchy there may actually be, there is very little support of matriarchy at the ideological level; indeed, much of the humor in comic strips like "Blondie" and "Maggie and Jiggs" comes from the disparity between matriarchal practice and patriarchal ideology.

are expressed directly by boys. Similarly, girls faced with the requirement of living up to this feminine ideal may have considerable conflict, often unconscious, over impulses in the direction of self-assertion, autonomy, "masculine" forms of achievement, and the like. It seems to be heavily influenced by the degree to which the unaccepted tendencies have been stimulated, by the availability of indirect avenues for their expression, and by the degree to which the person can achieve integration and gratification within the demanded role-pattern. Various studies (cf. Adorno *et al.*, 1950; Bjorklund and Israel, 1951; Dicks, 1950; Erikson, 1950; Fromm, 1941; Reich, 1946) suggest, however, that what are here called "exaggerated" masculinity and femininity tend, in our culture at least, to be inauthentic in the sense that they represent surface facades which can only partially inhibit or disguise intense wishes of a contravaluant nature.

Extreme Emphasis on Discipline. Authoritarian individuals tend to conceive of the authority in any social context as a power figure who provides standards and rules to which the subordinate persons or groups must conform. The authority must maintain strict discipline if he is to evoke the combined emotions of admiration and fear which produce the readiness to conform in a truly authoritarian system. The subordinate should have the conviction that he cannot "get away with" rule-violations. A serious dent in this conviction might lead to loss of respect and inner source of the concern with discipline in *punitiveness,* an authoritarian character trait through which aggression can be released in a morally rationalized and thus anxiety-free form. More fundamentally, however, the need for strict external control stems from the inadequacy of inner controls and from anxieties over the anticipated consequences of uncontrolled impulse-release.

In autocratic types of family ideology, discipline assumes a prominent and pervasive role in the child-rearing process. It helps to give the child a "proper" conception of parental authority and of himself in relation to that authority. It also provides a context for the induction of impulse-control in the child. Strong though often implicit emphasis is placed on punishment, which takes the form of bodily harm, social isolation, and/or shaming rather than loss of love, since the giving of love and the establishment of strong affectional ties are not likely to be primary issues in an autocratic setting. The prohibitions and demands tend to be presented in a rigid manner; the rationale for them is either not given ("the good child does what he is told without asking questions") or is presented arbitrarily and must

be taken largely "on faith" rather than on meaningful reason by the child.

In opposing the above emphasis on discipline, one need not propose that the child be asked to do only what seems reasonable to him. The general aims of "democratic" parents are that parental pressures be minimized and that the child's use of reason and sense of self-determination be maximized. However, the setting of necessary limits and the carrying out of necessary parental authority functions are frequently unresolved problems for these parents. The focus of this paper is on the autocratic orientations; clearly, there are numerous contradictions within the various democratic orientations which merit additional analysis.

Moralistic Rejection of Impulse Life. This characteristic is closely related to the preceding ones. Thus, the autocratic emphasis on discipline tends to require of the child a form of impulse-control which is so excessive and all-inclusive that a large part of his impulse life must be inhibited and denied. Rigidly dichotomized definitions of masculinity and femininity, and extreme emphasis on conformity to these role definitions, almost necessarily demand that children of each sex develop heavy defenses against wishes regarded as appropriate only to the other sex. The autocratic family atmosphere, with its implicit if not explicit threats and constraints, is likely to produce in the child strong hostile and autonomous impulses toward the parents; these impulses, violating as they do the moral requirements of obedience and respect, must also be inhibited or deflected onto new, morally appropriate objects.

For these and other reasons, numerous impulses of the child and adolescent are regarded as threatening in the autocratic family ideology. Aggression is totally frowned on (especially in the case of girls) or is permitted only within narrowly specified limits. Sexual wishes tend to be regarded as dirty and shameful and to be associated with delinquency, depravity, membership in inferior outgroups, and the like.

In the adult, sex is defined as a "physical" need, completely separate from "psychic" needs for personal relationship and not integratable with them. Male sexuality tends either to be devaluated as an attribute of man's "animal nature" or to be compulsively over-valued as a means of maintaining a masculine-heterosexual facade. Male-female relationships, sexual or not, are likely to be impersonal, exploitive, and relatively lacking in intimacy of feeling or understanding. Pre- and extra-marital sexual behavior is conceived of as representing

a "conquest" by the man, an indication of moral weakness or debasement on the part of the woman. Sexuality in the female, also removed from the realm of ego gratification and personal relationship, becomes primarily a commodity to be used in the struggle for status and social success.

In addition to the above ways of dealing with specific needs, authoritarianism often contains a more generalized attitude toward emotionality and toward unaccepted (contravaluant) impulses. We refer here to *anti-intraception,* a concept which found repeated application in various aspects of the original "authoritarian personality" study. It involves a rejection of intense feelings; a denial of the possibility that one might strongly want to do anything running counter to his moral standards; an alienation of the conscious self from inner fantasy and emotion; an uneasiness about introspection, solitude, and unstructured situations—for fear that the morally rejected impulses might appear in awareness or overt behavior.

The equalitarian approach is certainly not without taboos on aggression, sex, and other primary needs. Nor do we suggest that equalitarian personalities are lacking in inner restraints and unconscious impulses. They often have more internalized moral conceptions, greater guilt, and greater intrusion of unconscious fantasies into everyday activities. At the same time, however, they are less threatened by their impulses, they achieve a higher degree of emotional experience, and they are more prepared to accept in others what they reject, or have conflict about, in themselves.

Procedure

The TFI Scale was administered, early in 1950, to the entire membership of several adult evening psychology classes at Cleveland College, the downtown branch of Western Reserve University. There were 109 subjects in all. The sample was relatively heterogeneous with respect to age, religion, occupation, and marital status. In addition to students of college age, there were also part-time students in various occupational groupings: skilled workers, laborers, professionals, businessmen, clerical workers, and housewives. The age range was roughly 20 to 40, the mode being in the middle twenties. There were 67 men, 42 women. It is to be expected that the scale means for this group will be biased somewhat in a low (democratic) direction, on the basis of the members' interest in education, and particularly in psychology. The results below bear out this expectation.

Scoring. The subjects were instructed to indicate the degree of their agreement or disagreement with each item on a scale ranging

from +3 (strong agreement) to −3 (strong disagreement). The responses were converted into scores by means of an a priori scoring scheme. It was intended that a high score represent strong adherence to "traditional" or autocratic family ideology as here conceived, and that a low score represent opposition to this viewpoint. Of the 40 scale items, 34 were regarded as autocratic, 6 as democratic. For the "autocratic" items, responses were converted into scores in the following manner:

Response:	−3	−2	−1		+1	+2	+3
Score:	1	2	3	4	5	6	7

For the "democratic" items the scoring was reversed, so that 7 points were given for the −3 response, 1 point for the +3. The individual's total scale score is the sum of his item scores. The total scores can thus fall between 40 and 280 points. When the total score is divided by 40 we obtain the mean score per item on a 1–7 scale. For convenience in comparing scores from scales differing in length, we shall use the mean per item, multiplied by 10. The possible range is thus 10–70 points.

Results

The mean TFI score earned by the Cleveland College sample was 33.3, a value which is slightly on the "democratic" side of the neutral point of 40. The SD was 7.8, and the individual scores ranged from 16 to 50. The distribution is somewhat leptokurtic, with a clustering of scores around the mean and a paucity of extremes, particularly at the high end. The split-half reliability (odd-even correlation corrected by the Spearman-Brown formula) was 0.84; this value is adequate for the initial form but indicates the desirability of further scale analysis and improvement. It can be said that most subjects are relatively consistent (in terms of the hypotheses guiding scale construction) in their response to the variety of ideas presented.

Internal Consistency. In a scale like the present one, the idea contained in each item is conceived to be a part of a larger idea system, for which the total scale provides a single, global, though admittedly crude measure. In order to determine the scale's internal consistency, to evaluate the individual items, and eventually to improve the scale, an item analysis was carried out by means of the Discriminatory Power technique (Adorno *et al.*, 1950). The Discriminatory Power (DP) of an item reflects its ability to differentiate between extreme

high scorers and extreme low scorers (the upper and lower 25 per cent) on the total scale. Mathematically, the DP of an item equals the item mean earned by the high quarter (on the distribution of total scores) minus the mean of the low quarter.

Table 1 presents the 40 items of the TFI Scale, numbered as they appeared in the questionnaire, and grouped according to the issues of family life represented. To the left of each item are the DP and the Mean for the entire sample. Within each grouping, the items are presented in order of DP size. The DP's averaged 2.0 and varied from 0.04 to 3.5, all being positive. For only 5 of the 40 items (numbers 2, 3, 43, 51, and 52) did the DP fail to meet the 5-per-cent level of significance.

The "traditionalistic" orientation toward child rearing is reflected in several highly discriminatory items, notably 15, 22, 33, 40, 56, 57, 58. These items lay stress on the importance of obedience and respect in the child, on "rejection of impulse life," and on the use of strict control to prevent nonconformity.

The discriminating items bring out several facets of the "traditionalistic" conception of woman's sexual and social role. Thus, "It goes against nature to place women in positions of authority over men" (item 50); and, although some equality in marriage is desirable, the good wife ought ultimately to be subordinate to the good husband (items 20, 31). Moreover, women are more responsible than men for maintaining sexual moral standards (item 37), and are to blame when these standards are broken (item 49). An autocratic conception is expressed in item 46: "A man can scarcely maintain respect for his fiancée if they have sexual relations before they are married" (mean = 3.6; DP = 3.1).

Table 1. *The Traditional Family Ideology (TFI) Scale.*

Item Mean	D.P.	
		A. Parent-child relationships; child-rearing techniques
4.0	3.5	39. A child should not be allowed to talk back to his parents, or else he will lose respect for them. (II, IV)
3.2	3.5	40. There is a lot of evidence such as the Kinsey Report which shows we have to crack down harder on young people to save our moral standards. (IV, V)
3.8	2.9	58. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents. (II)

Table 1 (*cont.*)

Item Mean	D.P.		
2.9	2.8	33.	A well-raised child is one who doesn't have to be told twice to do something. (II, IV)
4.4	2.4	56.	A woman whose children are messy or rowdy has failed in her duties as a mother. (II, V)
4.2	2.2	15.	It isn't healthy for a child to like to be alone, and he should be discouraged from playing by himself. (I, V)
2.7	2.1	22.	If children are told much about sex, they are likely to go too far in experimenting with it. (I, V)
3.5	2.0	57.	A child who is unusual in any way should be encouraged to be more like other children. (I, V)
4.2	1.8	45.	The saying "Mother knows best" still has more than a grain of truth. (I, II)
3.5	1.7	9.	Whatever some educators may say, "Spare the rod and spoil the child" still holds, even in these modern times. (IV)
2.5	1.5	21.	It helps the child in the long run if he is made to conform to his parents' ideas. (II, IV)
3.3	0.9	* 3.	A teen-ager should be allowed to decide most things for himself. (II, IV)
1.8	0.9	*27.	In making family decisions, parents ought to take the opinions of children into account. (II, IV)
6.1	0.7	51.	It is important to teach the child as early as possible the manners and morals of his society. (I)
2.2	0.0	*52.	A lot of the sex problems of married couples arise because their parents have been too strict with them about sex. (IV, V)
		B.	Husband and wife roles and relationships
3.7	3.2	31.	Women who want to remove the word *obey* from the marriage service don't understand what it means to be a wife. (II, III)
3.5	3.0	20.	Some equality in marriage is a good thing, but by and large the husband ought to have the main say-so in family matters. (III)
3.5	2.3	38.	A man who doesn't provide well for his family ought to consider himself pretty much a failure as husband and father. (I, III)
3.8	2.2	14.	Faithlessness is the worst fault a husband could have. (I, III)
3.6	1.3	44.	In choosing a husband, a woman will do well to put ambition at the top of her list of desirable qualities. (III)

Table 1 (*cont.*)

Item Mean	D.P.	
1.3	0.7	7. A wife does better to vote the way her husband does, because he probably knows more about such things. (II)
1.6	0.6	8. It is a reflection on a husband's manhood if his wife works. (III, V)
1.9	0.6	*43. Women should take an active interest in politics and community problems as well as in their families. (I, III)
		C. General male-female relationships; concepts of masculinity and femininity
3.6	3.1	46. A man can scarcely maintain respect for his fiancee if they have sexual relations before they are married. (III)
3.4	3.0	50. It goes against nature to place women in positions of authority over men. (II, III)
2.8	2.9	37. It is a woman's job more than a man's to uphold our moral code, especially in sexual matters. (III)
2.6	2.7	49. The unmarried mother is morally a greater failure than the unmarried father. (III)
4.2	2.6	26. The most important qualities of a real man are strength of will and determined ambition. (III)
3.0	2.6	25. Women can be too bright for their own good. (II, III)
3.0	2.2	*10. Women have as much right as men to sow wild oats. (III, V)
2.6	2.0	16. Petting is something a nice girl wouldn't want to do. (III, V)
3.0	2.0	13. Women think less clearly than men and are more emotional. (III)
3.8	1.4	1. Almost any woman is better off in the home than in a job or profession. (I, III)
2.0	1.4	32. It doesn't seem quite right for a man to be a visionary; dreaming should be left to women. (III, V)
4.1	1.2	*19. Even today women live under unfair restrictions that ought to be done away with. (II, III)
3.7	0.9	2. It's a pretty feeble sort of man who can't get ahead in the world. (III)
		D. General values and aims
4.6	3.3	55. The family is a sacred institution, divinely ordained. (I, II)

Table 1 (*cont.*)

Item Mean	D.P.	
4.5	2.6	28. One of the worst problems in our society today is "free love," because it mars the true value of sex relations. (I, V)
3.9	1.9	34. It is only natural and right for each person to think that his family is better than any other. (I, II)
3.7	1.8	4. A marriage should not be made unless the couple plans to have children. (I, V)

* Agreement with these items is given a low score, disagreement a high score.

Item 34 is from the "Suggested Final Ethnocentrism Scale," item 58 from the F (Authoritarianism) Scale, presented in *The Authoritarian Personality* (Adorno *et al.*, 1950).

The numbers in parentheses at the end of each item refer to the personality variables they are thought to tap. The numbers are given here for their possible suggestive value; it is not assumed that any item is a "pure" expression of any variable. The variables are named as follows (see text): I. Conventionalism; II. Authoritarian Submission; III. Exaggerated Masculinity and Femininity; IV. Extreme Emphasis on Discipline; V. Moralistic Rejection of Impulse Life.

The traditionalistic conception of masculinity and the male role is partially reflected in the items just discussed. It is expressed more directly in items 14, 26, and 38. Assertive, aggressive power-seeking qualities are stressed in item 26 as defining "a real man." According to item 38, the man who does not meet an external, financial criterion (of being a good provider) is a failure as husband and father. The results of other studies, especially Adorno *et al.*, 1950, and Dicks, 1950, indicate that more equalitarian individuals are inclined to place greater emphasis on the tender-minded, nurturing-sharing-understanding qualities, on providing well in a psychological rather than a financial sense, in their definitions of the good husband and father. This is, of course, a matter of relative priority of values; many qualities which are primary for one group are secondary for the other.

Our data are in line with the common observation that, along with the increasing breakdown of traditional sex-role differentiation in the American social structure, there is increasing uncertainty and ambiguity in the conceptions of masculinity held by Americans. Certain traditional ideas now gain scant acceptance. Thus, the statement that "It is a reflection on a husband's manhood if his wife works" (item 8) has a mean of only 1.6 for our total sample; it would probably have been strongly supported 50, or even 30, years ago. It is true, of course, that many men are ready to "allow" their wives to work on other than equalitarian grounds, and that women may hold out-

side-the-home jobs without giving up the patriarchal masculinity-femininity dichotomy. Nevertheless, it would appear that the old criteria of masculinity have been shaken, without having been replaced by a new, clearly defined and strongly valued conception. This inference is supported by the relative scarcity of intense agreement or disagreement (scores of 7 or 1) on most of the masculinity-defining items. The "traditionalists" cannot actively accept these ideas, nor can the "modernists" militantly oppose them. Problems such as these merit further study of groups which represent in more prototypic fashion the contrasting orientations discussed here.

The above data indicate that the TFI Scale in its initial form has a reasonably adequate degree of reliability and internal consistency, and they provide a basis for further improvement. They tend, moreover, to support the general theory by means of which the scale was constructed. A number of ideas dealing with various familial roles and role-relationships, and expressing various personality trends, have been shown to form a relatively coherent pattern or idea system. Finally, total scores on the TFI Scale can be said to measure, in a crude but satisfactory manner, the degree to which individuals support or oppose this over-all pattern of thought.

We turn now to some relationships of the TFI Scale to other, theoretically related measures. These relationships may be taken in part as indirect indications of the "validity" of the TFI Scale, and in part as a means of placing family ideology in a broader theoretical context.

Relation of the TFI Scale to the Ethnocentrism (E) and Authoritarianism (F) Scales. As the TFI Scale was constructed on the basis of a theory of authoritarian personality, and as many of the central concepts were based on clinical study of highly ethnocentric versus relatively non-ethnocentric individuals, we predicted that the TFI Scale would correlate significantly with the E and F Scales developed in the original research (Adorno *et al.*, 1950).

Ten-item forms of E and of F were adapted from the longer forms originally constructed. The statistical properties of these short forms approximate those of the originals. For the present sample, the E Scale had a mean of 31.4 and a range of 10 to 66 (on a 10–70 scale like that for TFI, with higher scores indicating greater ethnocentrism). On the F (Authoritarianism) Scale, the mean was 33.2 and the range 10 to 61. These means are very close to the TFI mean of 33.3. The E and F means for a variety of groups reported in the original study average about 40; the E and F means for the present sample

are thus relatively low, though fairly typical for college groups. The product-moment correlation between E and F in the present study was .65, close to the average of about .7 reported in *The Authoritarian Personality*.

The TFI Scale correlated .65 with E and .73 with F—values which support the major theses of the research. Thus, the correlation with E is evidence that traditional family ideology, as represented by the TFI Scale, is part of the larger syndrome of autocratic ideology. The correlation of TFI with F, taken together with the earlier clinical studies of personality differences between extreme high and low scorers on E, indicates that the democratic-autocratic continuum of family ideology is related to the equalitarian-authoritarian continuum of personality.

Relation of TFI to Some Religious Preferences and Practices. The major religious groupings can be clearly ranked with respect to average degree of traditionalism in family ideology: the Catholics have the highest TFI mean, followed in order by the Protestants, the Jews, and the unaffiliated (see Table 2). The differences between adjacent groups are not large and, given the small numbers involved, not statistically significant. However, an identical rank order has been found with respect to authoritarianism (Sanford *et al.*, 1950–52) and ethnocentrism (Adorno *et al.*, 1950). Despite these differences *between* the major religious groupings, there are such large variations *among* Catholics, among Jews, and among Protestants—members of each grouping being found at both extremes of the TFI distribution —that religious group membership as such can hardly be regarded as a primary determinant. A group will show ideological uniformity only to the extent that its members have in common other, psychologically related characteristics.

Table 2. *Mean TFI Scores for Various Religious Groups in the Cleveland College Sample.*

Religion	*N*	TFI Mean	*N* in TFI Quarters: Low Q	High Q
1. Roman Catholic	35	36.2	4	12
2. Greek Catholic	5	34.1	0	1
3. Combined Protestant sects	47	33.2	11	11
4. Congregational and Unitarian	5	23.2	5	0
5. Jewish	6	30.8	3	1
6. No preference	11	29.9	4	2
Totals	109	33.3	27	27

The TFI mean for the Congregationalists and Unitarians has been computed separately from that for the other Protestant groups and given in Table 2. Previous data (Adorno *et al.*, 1950; Alven, 1950) suggested that these two are among the most humanistic and the least ethnocentric of Protestant denominations. Although the number of cases is very small, the present data support the hypothesis that they are also among the most democratic with regard to family ideology.

It might be supposed that persons who attend services regularly will be more firm than the irregular or nonattenders in their adherence to democratic values, since most religious doctrines emphasize such democratic values as universal brotherhood and the dignity of the individual. However, earlier evidence (Adorno *et al.*, 1950) has shown that regular church attenders are no less ethnocentric, on the average, than those who attend irregularly or only occasionally. Our general theory leads us to predict that church attendance will show a similar relation to TFI as to E.

In the present sample, the TFI mean increases with frequency of church attendance. Of the 109 subjects, the 44 regular (weekly) attenders have the highest TFI mean, 35.0, and proportionately the fewest cases in the low quarter of the TFI distribution. Conversely, the 14 who never attend have the lowest TFI mean, 29.6, and relatively the fewest cases in the high quarter. The difference between the two means is significant at beyond the 5-per-cent level of confidence. The irregular attenders have an intermediate TFI mean, 32.7, which approximates that for the total sample. It would appear that active participation in an institutionalized religion tends, by and large, to be associated with an authoritarian conception of the family and of human relationships generally. The problems of differentiating authoritarian from equalitarian religious orientations, and of determining their socio-psychological bases, remain relatively unexplored.

Persons whose religious affiliation is *different* from that of their parents are less ethnocentric on the average than persons who continue in the parental religion (Adorno *et al.*, 1950). To the extent that the change in affiliation expresses equalitarian trends, it will be associated with a broad democratic orientation. (Maintaining the parental affiliation is, of course, not necessarily a sign of submission and authoritarianism.) We accordingly predicted that those who differ from parents in religious affiliation will make relatively low TFI scores, on the average.[2] Of the 109 subjects in the present sample,

[2] These data are based on answers to three questionnaire items: "What is your religion?" "What is your father's religion?" "Your mother's religion?" The

20 differed from their fathers; this group had a TFI mean of 28.3, as compared with 34.4 for the others. Moreover, 11 of these 20 were in the low quarter of the sample distribution, only 2 in the high quarters. For the group of 21 who differed from their mothers in religious affiliation the TFI mean was 29.9; 10 were in the low quarter, 4 in the high quarter. Thus, to a statistically significant degree (5-percent level), change away from the parental religious pattern is associated with a more equalitarian conception of the family.

Projective Questions as a "Validating" Procedure. As an additional "validating" procedure, our subjects were asked, in four open-ended, projective questions, to record briefly what they considered to be a good husband, wife, child, and mode of child rearing.[3] The responses of the extreme high and low quarters on the TFI Scale were compared, for each item, and "authoritarian" vs. "equalitarian" scoring categories were formulated. The analysis employed was similar in principle to that used on the Projective Question Test in the earlier authoritarianism study (Adorno *et al.,* 1950). The method and results will be presented when data on additional groups are available and the scoring manual has been retested and improved. It must suffice, for the present, to note that the initial results support the general theory, in that the categories which differentiate the high and low scores reflect the genotypic variables on which the TFI Scale was originally constructed.

Summary and Conclusions

We have conceived of ideology as a relatively organized, relatively stable pattern of thought within the individual, and as an aspect of personality. This is not to say that ideology is produced autochthonously by each individual. However, we do propose that, *within the range of externally available alternatives,* each individual selectively chooses and organizes ideas largely on the basis of his personal cognitive-affective-motivational modes of functioning. A complete theory of ideology must take account of the interaction of intrapersonal, specific situational, and general sociocultural factors. The present research, with no claims to completeness, seeks to relate differences in

subject's religion may be compared with either father's or mother's as the parents themselves sometimes differ. The subject and parent are considered "different" if they prefer different sects, or if one is religious and the other is not.

[3] The questions were as follows: (1) What is your idea of a good wife? (2) What is your idea of a good husband? (3) What traits would you like your child to have? (4) What are the best ways to bring out good behavior in children?

ideology to differences in personality, among individuals whose social environmental conditions are fairly comparable in broad sociological outline.

We hypothesized that there is an autocratic-democratic continuum of ideology concerning the family and that this continuum is associated with the autocratic-democratic dimension in other ideological spheres and with the authoritarian-equalitarian personality continuum.

A 40-item Traditional Family Ideology Scale was constructed and given to the 109 members of several adult evening psychology classes. Individual score totals can vary between 10 and 70. High scores presumably indicate an autocratic, low scores a democratic, ideological orientation. The mean for the initial sample was 33.3, the *SD* 7.8, the split-half reliability 0.84. Of the 40 items, 35 were shown to differentiate adequately the extreme high and low quarters of the initial sample. These results suggest that the initial TFI Scale is an adequate measuring instrument with respect to reliability and internal consistency, and they support the hypothesis that contrasting democratic and autocratic patterns of thought embracing numerous facets of family structure do in fact exist.

The TFI Scale showed significant relationships with several independent measures. (1) TFI correlated .65 with the Ethnocentrism (E) Scale and .73 with the Authoritarianism (F) Scale. In view of earlier work on these scales, we may conclude that autocratic and democratic patterns of family ideology, as represented in the TFI Scale, exist within broader psychological contexts of authoritarian and equalitarian personality, respectively. (2) TFI score was related to various aspects of religious functioning. In the case of religious affiliation, Catholics earned the highest mean, followed in order by Protestants, Jews, and the unaffiliated. Variations within religious groupings were pointed out and discussed. TFI scores increased on the average with frequency of church attendance. Those whose religious affiliation differed from that of their parents were significantly below the group mean on TFI. (3) On four projective (open-ended) questions concerning various familial roles and practices, the scoring categories which differentiated between high and low scorers on TFI were congruent with the theory guiding scale construction.

The immediate aims of the research have thus been realized, within the limits of the research design and the samples studied. By way of conclusion, we should like to mention three related problem areas which merit further investigation. (1) What are the *major qualitative variants* of democratic, autocratic, and "intermediate" family ide-

ology? The present study, and most of the related ones, have operated with the model of a trichotomous, quantitative continuum of "high," "middle," and "low" orientations. Yet it is clear that there are diverse patternings within each of these contexts, and it may be supposed that there are important differences in the determinants and the consequences of each pattern. In studying these variations, scales will probably be less useful than other methods such as the systematic analysis of personal documents obtained through interviews and other clinical or field-work devices. (2) *What is the relation of ideology to action?* The TFI Scale, like any measure of ideology, is intended to assess the individual's way of thinking about a set of social issues. We should expect that high and low scorers would differ, on the average, in their modes of child rearing, in the educational policies they support, and so on. However, the relation between ideology and action is far from univocal, and its study constitutes a major substantive problem in socio-psychological research. There are at least three sources of disparity between what a man thinks and what he does: situational pressures which prevent the direct expression of ideological convictions or which immobilize the ego; inner conflicts which inhibit action or which prevent the formation of an integrated ideology; contradictions and ambiguities in the ideology itself, which limit the possibilities of action in any given situaton. (3) *What are the consequences of the parents' family ideology* with regard to the personality and ideology of the offspring? The parents' ideology is obviously but one aspect of an intricate network of influences on the growing child. Moreover, what parents believe and say is often at variance with what they tell the child in the more implicit language of emotion and unconscious expectation. There is, nevertheless, a slowly growing body of research demonstrating the differential effects of authoritarian and equalitarian family settings (Frenkel-Brunswik, 1949; Harris, Gough, and Martin, 1950; Bjorklund and Israel, 1951; Erikson, 1950). We are thus encouraged in the view that further study of family ideology, seen in relation to other psychological and social processes, can make a significant contribution to our understanding of both individual and society.

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A. Lewis Rhodes, in this study, carries the variable of authoritarianism in another but not surprising direction. When one studies the alleged theoretical meaning of this variable, he finds psychological factors that seem to have relevance to, among other things, the form and the substance of the individual's religious beliefs. The original study, The Authoritarian Personality, *carried a section on the relation of the variable to religious ideologies. Here, Rhodes attacks the possible relation between religious fundamentalism of an individual and the scores of that individual on the F scale. Do high-scoring persons tend to be more or less fundamentalist than those who score low on the F scale? Rhodes also goes into some demographic questions: Do rural church members generally differ from urban church members in both fundamentalism and authoritarianism? If so, is the difference a personality difference or something else?*

In confronting such questions, the meaning of the variable of authoritarianism can be clarified either through extension or through restriction. Which will it be?

AUTHORITARIANISM AND FUNDAMENTALISM OF RURAL AND URBAN HIGH SCHOOL STUDENTS*

A. Lewis Rhodes

The following study is concerned with the relationship between authoritarianism and religious preference of high school seniors. It deals with three questions: Does authoritarianism (as measured by the F Scale) vary with religious preference, specifically Protestant fundamentalist preference? Is this relationship independent of selected factors such as socio-economic status, rural or urban residence, and influence of religious belief? Which of the F Scale items are related to religious preference? Previous research has indicated that response to the F Scale content is not independent of some sociocultural factors (Hyman and Sheatsley, 1954; MacKinnon and Centers, 1956). The efforts of certain contemporary Protestant sects to promote racial hatred suggest that religious persuasion may be connected with pre-fascist tendencies (Roy, 1953). Since the F Scale is concerned with these tendencies, it follows that F Scale performance could be affected by the quality of religious orientation as indicated by religious preference.

Data were presented by R. N. Sanford to show that subjects who profess some religious preference are more ethnocentric than those who do not, but little difference exists among major denominations (Sanford, 1950). T. W. Adorno, on the other hand, states that this may be due to the nature of the sample and that if the experiment were to be carried out in a different geographical area such as the Bible Belt where religious ideology has social importance, then the results might be different (Adorno, 1950). Two pretests of the F Scale in Middle Tennessee supported the contention of Adorno (Rhodes, 1956). These pretests suggested that persons with Protestant fundamentalist preferences would be more likely to endorse F Scale content than persons preferring nonfundamental or liberal Protestant denominations. Therefore, the hypothesis is offered that authoritarianism varies directly with fundamentalism. An expanded discussion of reasoning which led to this hypothesis is available else-

* From *Journal of Educational Sociology*, Vol. 34, 1960–61, pp. 97–105. By permission.

where (Rhodes, 1956). Since F Scale performance is not independent of socio-economic status and since the degree of religious influence may be important, it seems essential that these factors be taken into account when testing this hypothesis. Because the great majority of the subjects in the original study were from urban areas, it seems desirable to include rural versus urban residence as a factor in examining the authoritarianism-fundamentalism relationship.

It was necessary to make a number of operational definitions in order to test the hypothesis about authoritarianism and fundamentalism and to take into account the factors of influence of religious belief, socio-economic status, and rural or urban residence. These operational definitions are: 1. Authoritarianism is measured by the F Scale. 2. Fundamentalism is indicated by preference of churches and sects having fundamental theology (Church of Christ, Church of God, Cumberland Presbyterian Church, etc.) and nonfundamentalism is indicated by preference of churches with liberal or nonfundamental theology (Methodist, Presbyterian, Episcopalian, Congregational and other churches) using criteria for classification supplied by Mayer and Pope (Mayer, 1951; Pope, 1942). 3. Influence of religious belief is indicated by subject's self-evaluation, using a five-point rating from "none" to "very much" in answer to the question, "How much influence do you think your religious belief has on the way you live from day to day?" (Those who check "pretty much" or "very much" have high influence.) 4. Socio-economic status is indicated by the occupational level of the person who contributes most to the support of the subject's family. The "white-collar" occupational category includes subjects from homes where the occupation is professional, managerial, sales, or clerical. The "blue-collar" category includes those from other occupational groups including farm occupations. 5. The "urban" category includes all subjects who attend high schools within a Standard Metropolitan Area; the "rural" category includes those who attend high schools serving small communities (less than 5,000 population) and open country areas. (Rhodes, 1956). A brief discussion of the procedure follows.

Method

Population. Pretest of the F Scale (Form 45) and of the Srole Scale suggested that persons with less than a high school education have difficulty in understanding the items in these two measures. Words like "supernatural," "determination," "astrology," and "familiarity" are not in the vocabularies of these persons. The two scales,

along with items about pertinent background information, were administered to a population of male and female seniors in eight high schools, the total *N* being 1027. Four high schools include about 80 per cent of the seniors in a standard metropolitan area in Tennessee, and the other four high schools include about 80 per cent of the seniors in four town or country high schools serving communities of less than 5,000 population within 60 miles of the metropolitan area. The selection of a portion of a Tennessee population was governed by limited financial resources for going further afield and because the high incidence of fundamentalist religious bodies afforded an opportunity to test the hypothesis.

The Instrument. The questionnaire consisted of the short form (Form 45) of the F Scale and the five-item Srole Scale, together with items about background. It was necessary to amend the F Scale. Specifically, the item concerning the use of Nazi officials in post-war Germany was dropped because it was not salient for these seniors who were in the second grade at the end of World War II. The item concerning homosexuals was dropped to protect school administrators from community criticism. The item about using force to preserve the American way (F Scale item 41, Form 60) was added. Four items were amended according to the practice of Eager and Smith (1952). Test retest of the original F Scale items versus the revised items indicated that there was no difference in score except for slight chance fluctuation. Pretests, these revisions, and a copy of the instrument are available elsewhere (Rhodes, 1956). Questionnaires were simultaneously administered throughout a school by homeroom teachers in a normal classroom situation. Although there are shortcomings to this procedure, limitations in school time and resources precluded other alternatives.

Results

The General Relationship between Religious Preference and F Scale Scores. Subjects were divided into seven groups: fundamental Protestant, Baptist, Roman Catholic, nonfundamental Protestant, no religious preference, and Jewish preferences. Baptists made up about two-fifths of the total *N*, thus they were kept separate and were assumed to rank somewhere between the other two Protestant groups with respect to fundamentalism. The per cent of subjects in each category of preference who scored above the median F Scale score for all 1027 cases (4.57) is presented in Table 1. (*N*'s, means, and standard deviations are also shown for descriptive purposes.) It can be seen

that Jews have the lowest F Scale scores and that fundamental Protestants have the highest scores; Baptists and Catholics are quite similar.

The Specific Relationship between Protestant Fundamentalism and F Scale Scores. If attention is focused on differences between the three Protestant groups, it is apparent that authoritarianism varies directly with Protestant fundamentalism ($X^2 = 21.4$, $p(X^2) < .001$).

Table 1. *F Scale Performance by Religious Preference.*

Religious preference	Per cent High F[a]	Mean F Scale Score	Median F Scale Score	Standard deviation	*N*
Fundamental Protestant[b]	62	4.7	4.8	.61	218
Baptist (missionary)[b]	54	4.5	4.6	.66	380
Roman Catholic	51	4.6	4.6	.65	49
Nonfundamental Protestant[b]	41	3.9	4.4	.70	283
No preference	35	4.2	4.2	.24	55
Jewish	24	3.5	4.3	.20	17
Pref. not classified[c]	28	—	—	—	25
Total population[d]	50[a]	4.6	4.57	.68	1027

[a] Per cent "High F" refers to per cent of subjects who scored above the median for the total population (1027 cases).

[b] Chi square test was applied to Protestant groups separately ($X^2 = 21.4$, $p\ (X^2) < .001$).

[c] "Preference-not-classified" group included subjects whose church could not be identified because its name was illegible or unknown to local informants, or else outside classification system (e.g., 2 Greek Orthodox churches).

[d] Chi square test was applied to F scores by all preference categories (including Protestants) ($X^2 = 36.8$, $p\ (X^2) < .001$).

The nonfundamental Protestant category is overweighted with Methodists (68 per cent) who are more authoritarian (44 per cent above the median F Scale score) than other nonfundamental Protestants (36 per cent above median F Scale score). Likewise, the fundamental Protestant category is overweighted with those preferring the Church of Christ (61 per cent) who are less authoritarian (54 per cent above median) than other fundamentalists (75 per cent above median F Scale score). When chi square is applied to distribution of F Scale scores within these five categories: Methodists, other nonfundamentalists, Baptists, Church of Christ persons, and other fundamentalists, then the predicted relationship is even more apparent ($X^2 = 132.9$, $p(X^2) < .001$). However, subsequent operations in this paper involve the three-category classification of Protestant pref-

erence (fundamental-Baptist-nonfundamental) in order to provide the minimum expected call frequencies required by the chi square test.

The Test for Independence of the Authoritarianism-Fundamentalism Relationship. Tests (chi squares) for association between authoritarianism and each of the test variables (urban residence, occupational level, and influence of belief) show that F Scale performance is related to occupational level; other chi square tests show that fundamentalism is related to urban residence and occupational level. Intermediate orders of partialing according to the three test variables are not presented in the interest of brevity; distribution of F Scale scores within homogeneous subgroups created by the third order of partialing are presented in Table 2.

First, one observes in the right hand margin of Table 2 that the authoritarianism-fundamentalism relationship is not independent of rural or urban residence as indicated by attendance at a rural or urban school. This relationship is attenuated in all rural groups. Also, this relationship is not independent of socio-economic status as indicated by occupational level of subject's family. Moving from top to bottom of Table 2, it is apparent that the difference in authoritarianism between fundamentalist and nonfundamentalist subjects tends to decrease as socio-economic status and urban influence decrease.

When influence of belief is added as a control factor, one finds that the difference between fundamentalists and nonfundamentalists still tends to decrease as status and urban influence decrease among those subjects who indicate high influence of religious belief. However, in the groups where influence of belief is low, the authoritarianism-fundamentalism relationship continues to hold in the four groups where occupational level and rural or urban location are known. Although this finding is consistent with the previous findings that subjects with no religious preference tend to have low scores on the E Scale (Sanford, 1950), one would not give much weight to this finding given the small number of cases. The next step in the sequence of investigation was to test individual F Scale items for association with Protestant fundamentalism.

Discussion

One among a number of possible links between authoritarianism and fundamentalism is provided by a trait of fundamentalism, premillennial pessimism. Subsequent analysis has shown that F Scale items which involve this trait are associated with fundamentalism. Two ex-

Table 2. *Percentage of High F Scale Scores within Subgroups Which Are Homogeneous as to Fundamentalism, Occupational Level, Residence and Influence of Religious Belief.**

Fundamentalism, Rural or Urban School and Occup. Level	Influence of rel. belief: Low		High		Total	
Urban school—						
"White-collar" occup.						
Fundamentalist preference	50**	(2)	63	(27)	62	(29)
Baptist preference	33	(18)	54	(97)	50	(115)
Nonfundamentalist preference	23	(13)	35	(115)	31	(128)
Urban school—						
"Blue-collar" group						
Fundamentalist preference	89	(9)	66	(38)	70	(47)
Baptist preference	39	(28)	56	(137)	53	(165)
Nonfundamentalist preference	38	(8)	49	(49)	47	(57)
Rural school—						
"White-collar" occup.						
Fundamentalist preference	60	(5)	47	(17)	50	(22)
Baptist preference	40	(5)	53	(15)	50	(20)
Nonfundamentalist preference	25	(4)	42	(26)	40	(30)
Rural school—						
"Blue-collar" occup.						
Fundamentalist preference	58	(19)	58	(81)	58	(100)
Baptist preference	60	(20)	48	(40)	52	(60)
Nonfundamentalist preference	38	(16)	59	(39)	53	(55)
Urban school—						
No occup. information						
Fundamentalist preference	100	(2)	100	(6)	100	(8)
Baptist preference	0	(2)	78	(9)	64	(11)
Nonfundamentalist preference	100	(1)	75	(4)	80	(5)
Rural school—						
No occup. information						
Fundamentalist preference	50	(4)	75	(8)	67	(12)
Baptist preference	100	(4)	40	(5)	67	(9)
Nonfundamentalist preference	0	(2)	83	(6)	62	(8)

* "High F Scale scores" equals scores above median F Scale score (4.57) for 1027 cases.

** Parentheses indicate *N* of subgroup.

amples are: "Human nature being what it is there will always be war and conflict"; and "Wars and social trouble may someday be ended by fire or flood that will destroy the whole world."

Another link is provided by certain Puritan qualities of fundamentalism. These qualities include asceticism and *denial* of aggressive impulses. Such qualities could lead the fundamentalist to accept the items pertaining to the desire to hurt a relative, indecent attacks on women, and getting rid of immoral people. The asceticism and premillennial pessimism may be related to acceptance of the item, "Nobody ever learned anything really important except through suffering." Another quality of fundamentalism is the rejection of rational and scientific attempts to better conditions in this world. Fundamentalist groups are "anti-missionary" to the extent they eschew pragmatic attempts to understand and alleviate personal and social problems in this life. If a liberal, rational humanitarianism is part of what subjects attending nonfundamental churches are taught, then it could account for rejection of F Scale items concerning science and personal problems. Whether or not these are *the* links which relate fundamental preference and F Scale content remains a problem for future investigation.

The data presented here lead to the conclusion that association between authoritarianism and fundamentalism is not independent of indexes of socio-economic status and rural residence. The difference between fundamental and nonfundamental subjects tends to decrease as status and urban influence decrease. Although there are no data available, it is possible that this difference is less because differences between fundamental and nonfundamental churches lessen as the character of the churches becomes more rural and lower in status.

Three things emerge from this study. First, the attitudes of an authoritarian character (relating to ethnocentricism and prejudice) expressed by high school subjects are not independent of religious preference. Second, contrary to the contention of some psychologists and psychoanalysts, the F Scale performances of high school students are not independent of such "sociological" variables as socio-economic status and rural or urban residence. Third, there is more variation among Protestants than between Protestants and Catholics with respect to authoritarianism. This last finding suggests that in this area of investigation, and possibly in others, the time has come for the social scientist to explore alternative means of classifying religious orientation other than the tired old trichotomy: Catholic, Protestant, Jew.

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Eugene Nadler's study tackles another aspect of the "meaning" of authoritarianism. If it is a meaningful variable, we may say on the basis of theory that it should be related to what an individual believes concerning matters of conformity and "rugged individualism," and it should relate also to whether or not an individual is prone to yield to the pressure of the majority in a group setting. Do these theoretical "shoulds" hold up when the facts are in? In pursuit of his facts, Nadler relates the variable of authoritarianism to some continuing work in conformity behavior, work from a quite different source and from a different psychological tradition.

YIELDING, AUTHORITARIANISM, AND AUTHORITARIAN IDEOLOGY REGARDING GROUPS*

Eugene Nadler

This investigation was prompted by Asch's (1952) discussion of the personal and social significance of yielding to group pressure. For the person, yielding requires the inhibition of overt and perhaps implicit responses to objective situational requirements. For the group, malignant processes may arise and develop, unchecked by those members in whom goals of personal security predominate over group goals. In the present study, the view was taken that both meanings of yielding are assigned positive value in two separate ideologies concerning the group-individual relation. One of these is termed *conformity,* which includes the value of submission of the individual to the demands of the group, even if so doing requires the inhibition of response to the objective situation. The other is *rugged individualism.* Among other features, this ideology countenances the decay of group structures which may result from the valued expression of egocentric motives. Asch's discussion led to the hypothesis that the extent to which individuals yield is related to the degree of their acceptance of either of these two ideologies.

Previous research also suggested the more inclusive hypothesis that yielding, as well as conforming and rugged individualistic ideology, could be viewed within the conceptual framework of the authoritarian personality. Frenkel-Brunswik (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950, Ch. 11) reports that in interviews, people scoring in the highest quartile of the E scale showed acceptance of the idea of survival of the fittest, hero worship of acquaintances, a view of the world as a jungle, and exploitive manipulative opportunism, i.e., rugged individualism. The *same* people showed conventionalism and the desire for status-acceptable qualities in their friends, i.e., conformity. However, her account does not reveal the

* From *Journal of Abnormal and Social Psychology,* Vol. 58, 1959, pp. 408–410. By permission.

extent of relationship between the two patterns, nor how they influence behavior in a concrete situation.

Method

Group pressure was simulated by announcing bogus group judgments to small groups of *Ss* whose apparent task was to match one of three lines of variable length with a standard line (Asch, 1952, Ch. 14). This method is similar to that independently announced by Crutchfield (1955) shortly after the present study was begun. A more complete description of the method, and the precautions taken to maintain the deception, may be found in Nadler (1957).

Questionnaires were used to measure the other variables, which were: the ideology of conformity (IC), the ideology of rugged individualism (RI), ethnocentrism (E), authoritarianism (F). The California E and F scales (Adorno *et al.*, 1950) were used to measure the latter two variables. Similar Likert type scales were used to measure conformity and rugged individualism. Reliability and internal consistency of IC and RI had been determined beforehand in 107 college students.

Items in the IC scale stressed the value of compliance with the demands of common reference groups and the necessity for submerging the self in the group. Punishment for dissent was both implied and explicated, as was the hopelessness of dissent. Items in the RI scale denied the importance of social forces, asserting both the undesirability and the impossibility of groups having any decisive influence upon individuals. Other items raised narrow self-interest to the level of a virtue and denied social motives.

Since the original F scale contained many items with conforming or rugged individualist content, it was necessary to omit such items from the version used here, particularly since some of the items had been used in the IC and RI scales.

The questionnaires were administered to 91 college students, both day school and evening. About one week later, 70 of these participated in the experiment.

Results

The correlations between the frequency of yielding and each of the four scales are presented as part of Table 1. Negro, Jewish, and Asian *Ss* were not included in correlations involving the E scale. IC, RI, and E showed slight but significant ($p < .025$, one-tailed test) correlations

with frequency of yielding. The correlation with the F scale was .48 ($p < .01$), somewhat higher than Crutchfield's (1955) finding which it replicates. The correlations of yielding with IC and RI were significantly lower than that with F ($p < .05$ in both cases). The correlation with the E scale was not significantly different from the correlation with F, the removal of cases required by this comparison causing the correlation with F to drop.

Table 1. *Intercorrelations among the Measures.*

Measure	RI	E	F	Yielding
IC	.40	.55	.68	.30*
RI		.56	.63	.29*
E			.61	.30*
F				.48

* Significant beyond the .025 level. All others significant beyond the .01 level.

The intercorrelations among the scales are also presented in Table 1. These show moderate to substantial positive relationships ($p < .01$) among the various measures. As a check against spurious correlation between IC and RI due to similarity of item content, two psychologists sorted the otherwise unidentified items into the proper ideological categories. Both judges correctly divided the items without an error.

Discussion

It will be recalled that the F scale used in this study deliberately omitted items with conforming or rugged individualistic content. The remaining items express largely superstition, projectivity, sex preoccupation, moralism, and destructiveness. Summed up, these imply a weakening of the adaptive functions and a lack of confidence in them. The higher correlation of yielding with the F scale than with IC and RI points to the conclusion that central personality variables as revealed by the F scale were more important determinants of yielding than more peripheral ideological variables as revealed by IC and RI. The evidence was equivocal for the E scale, since the drop in correlation occasioned by removal of cases may have been due to the resulting homogeneity of variance. The authors of the F scale seem to have succeeded in their purpose of building an instrument that would measure those underlying personality tendencies responsible for antidemocratic ideology.

The more peripheral nature of the ideologies of conformity and rugged individualism probably accounts for the character of the relationship between them, low positive. Both are authoritarian ideologies, each having anti-individual as well as antisocial qualities. Yet, if they were *simply* dual and interchangeable expressions of authoritarianism, the correlation between them would be as high as their separate correlations with authoritarianism. Since this is not the case, it appears that they function only partly as expressions of authoritarianism, but partly as psychological alternatives. It might be rewarding to study the way these alternatives are used by yielders.

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Many studies bearing on the relation of authoritarianism to other personality variables, as measured by other tests and scales, offer evidence that the individual's overt behavior is related to his scores on the F scale. In retrospect, it seems almost inevitable that those social psychologists who were studying small groups should become fascinated by questions concerning the behavior of whole groups of authoritarians and of whole groups of equalitarians. This study, led by William Haythorn, deals with the asking and the confronting of these questions. Such questions about authoritarianism are specific instances of even larger questions about the influence of personality factors upon group phenomena and, relatedly, the effect on group functioning of homogeneity among the personalities of group members.

If the members of a group all have similar personalities, will the group show more cohesiveness? Higher morale? Greater effectiveness? How might groups of authoritarians compare in such matters with groups of equalitarians?

THE BEHAVIOR OF AUTHORITARIAN AND EQUALITARIAN PERSONALITIES IN GROUPS*

William Haythorn, Arthur Couch, Don Haefner, Peter Langham, and Launor F. Carter

The behavior of individuals in groups is a function of a large number of factors, interacting in complicated and vaguely recognized ways. These factors have been classified as personality, situational, and group characteristics (Carter, 1951). The problem under investigation in this paper is that of the relationships between certain personality characteristics of the group members and the pattern of interpersonal behavior that develops out of their interaction.

This study attempts to test a specific instance of the general hypothesis that groups composed of subjects (*S*s) having a common personality characteristic will differ behaviorally from groups composed of *S*s having in common a different personality characteristic.

More specifically, the present research was an investigation of groups composed of *S*s homogeneous with respect to the California *F*-scale (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950). The study was designed to test differences between the behaviors manifested by *S*s in groups composed of all high *F* or "authoritarian" individuals and the behaviors manifested by *S*s in groups composed of all low *F* or "equalitarian" individuals. The *F*-scale was chosen as the personality-measuring instrument because it allegedly measures a broad personality orientation toward authority, aggression, and interpersonal relations (Adorno *et al.*, 1950; Goodrich, 1953). It was felt that the rather extensive literature on the "authoritarian personality" offered a stable framework from which one could predict the social climate or laboratory "culture" that would develop in groups created in this manner. It was predicted that groups composed of authoritarian *S*s (as defined by the *F*-scale and other measures described below) would differ from groups composed of equalitarian *S*s in the following ways:

1. Authoritarian (*F*-plus) *S*s would behave more aggressively, owing to the authoritarians' allegedly greater willingness to condemn others.

2. Because the problem given the groups was structured in such a

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way as to call for cooperative participation and a certain degree of introspection, it was expected that the authoritarian *S*s would be less effective in dealing with the problem than would the equalitarian.

3. Authoritarian *S*s would be more concerned with the status hierarchy, and consequently would engage in more "striving for individual prominence."

4. The leaders who emerged in the *F*-plus groups would be more autocratic, less sensitive to others, and generally less effective.

5. Equalitarian *S*s would be more concerned with asking for other people's opinions, and would be more likely actively to support each other—since authoritarians theoretically are less apt to develop warm interpersonal relations (cf. Adorno *et al.*, 1950, p. 475).

Method

Selection of Subjects. A form letter asking for volunteers to serve as paid *S*s in an experiment in psychology was sent to approximately 600 undergraduates in the University of Rochester College for Men. Accompanying this letter were a copy of the California *F*-scale and a questionnaire regarding their willingness to serve as *S*s. Approximately 350 of the questionnaires were returned, of which 213 expressed a high degree of willingness to be *S*s. This volunteer sample had a mean score on the *F*-scale of 95.65, scoring the responses to each of the 30 items on a seven-point scale with seven being the most authoritarian. The sample had a standard deviation of 22.30 and ranged from a score of 44 to one of 157. From this sample were selected 50 students with scores below 80, and 50 with scores above 112. These students were contacted and scheduled for further testing.

These 100 *S*s were then given the Cattell Sixteen Personality Factors Questionnaire (Cattell *et al.*, 1949) and the Minnesota Multiphasic Personality Inventory. Because of the correlation reported between the California *F*-scale and a measure of political and economic conservatism (Adorno *et al.*, 1950, p. 265), Q_1, the "conservatism-radicalism" scale, of the Cattell 16 P.F. test was used as a further screening device to help to avoid making a misclassification of *S*s. There was very little overlap between the high and low *F* groups on this scale, and the overlap cases were dropped from further consideration. Also dropped were students whose MMPI profiles indicated a maladjustment believed sufficiently severe to create a probable source of variance in the group behavior. The latter criterion was defined as two or more scores that were two standard deviations above the means of the standardization population.

The above procedures, then, resulted in the selection of: (a) 32 *S*s who were high on the *F*-scale, conservative as judged by the Cattell Q_1-scale, and relatively normal as estimated by the MMPI; and (b) 32 *S*s who had low *F*-scale scores, were liberal as determined by the Q_1-scale, and were also "normal" as judged by the MMPI.

Laboratory Group Sessions. The sixty-four *S*s were brought to the laboratory in four-man groups such that each group consisted of either all *F*-plus or all *F*-minus individuals. This resulted in 8 groups of *F*-plus *S*s and 8 of *F*-minus *S*s. Upon arriving in the work-room of the laboratory, they were asked to wear differently colored laboratory coats for purposes of identification. The experimenter (*E*) delivered a short orientation lecture in which the group was told that they were to help him in developing a test of "human relations skills." *E* had been attempting to produce motion-picture scenes involving a human relations problem, to be shown to test respondents, after which they would be asked to answer a number of questions regarding how they thought the problem had been handled, how they would have handled it, etc. The *S*s were told that they were to help by writing the scripts for such scenes. As an example of what was meant, they were shown a scene involving a secretary-employer relationship in which the secretary was asking the employer to consider her for a position as executive secretary and the boss was trying to explain that the job required someone with a college degree or some comparable experience. The scene ended with the problem still unsettled.

Just prior to showing the film, *E* gave the instructions for the entire session. These instructions indicated that the task involved four stages, as follows: (a) They would be shown a film depicting a human relations problem in an industrial setting, after which they would be asked to answer several questions about it; (b) they would then discuss some similar questions as a group, and arrive at agreement regarding the answers; (c) next they were to compose dialogue for a film, involving a human relations problem in an industrial or business setting; and (d) they were to record their finished dialogue on a tape recorder. For incentive, *S*s were offered a bonus of $5.00 per man for the group recording the best script. Instructions for operating the recorder were attached to it, and it was left in the room with the *S*s. *E* then showed the film and left the room. A typed copy of the instructions was left on the table in front of them. *E* did not return until the finished dialogue had been recorded. This took about two-and-a-half hours for the average group, but ranged from two to four hours.

Data Collection. While working on the task, *S*s were observed through one-way-vision mirrors by two observers (*O*s) separated by a wall to minimize inter-observer communication. Each *O* recorded his observations in three ways: (a) While observing, *O*s attempted to categorize and type out each item of behavior as it occurred, using the Stenotype system of interaction recording developed by Carter, Haythorn, Meirowitz, and Lanzetta (1951a), but utilizing a revised list of categories designed to fit this experiment better. The unit of recording was defined as the "observer's interpretation of the function of the simple sentence" or comparable unit of non-verbal behavior. The definition was phrased in this way in recognition of the fact that the product of this type of recording is necessarily a function of interaction between the observer and the individuals observed. On an average, about twenty-one units were recorded per minute. *O*s had no knowledge of whether the group under observation was high or low *F* and were not informed until the end of the experiment. (b) In order to minimize unreliability due to fatigue, each set of two *O*s was relieved after thirty minutes of recording. Immediately after they stopped recording, each *O* rated the *S*s on sixteen behavioral traits, as follows:

1. *Striving for individual prominence:* degree to which behavior indicates a drive to attainment of a high status in the group.
2. *Friendliness:* degree to which positive affect toward others is shown.
3. *Security:* degree to which individual indicates a lack of anxiety in experimental setting.
4. *Influence:* degree to which behavior of individual affects the behavior of others in the group.
5. *Equalitarianism:* degree to which subject treats others as personal equals.
6. *Group approval:* active solicitation of friendly attitudes of others toward subject.
7. *Submissiveness:* degree to which subject overtly concurs, complies, defers, and otherwise bows to the directions, suggestions, and opinions of others.
8. *Striving for goal achievement:* degree to which behavior is directed toward getting the job done.
9. *Self-isolating behavior:* degree to which an individual actively places himself apart from the group.
10. *Effective intelligence:* degree of efficient, insightful behavior.
11. *Sensitivity to others:* degree to which behavior indicates concern with feelings of others.

12. *Leadership:* degree to which behavior moves group toward the goal.
13. *Aggressiveness:* degree to which behavior is directed toward physical or psychological injury to others.
14. *Autocratic behavior:* degree of directing behaviors that achieve their sanction from the individual rather than from the group.
15. *Social ability:* degree to which behavior indicates ability to establish rapport, and ability to enlarge social participation of others, and/or successfully elicits positive affect and participation of others.
16. *Non-adaptability:* degree to which behavior indicates failure to adjust to group functioning.

The trait ratings had an average inter-observer corrected reliability of .75 with a range from .305 to .907. These ratings were obtained from each of two *O*s at the end of every thirty minutes. Four *O*s observed each group, two *O*s at a time. (c) Finally, at the end of each group session four *O*s and *E* filled out a Post-Meeting Reaction Sheet (PMRS) designed to get a description of the group *per se*. Examples of the items on the PMRS are:

1. This group was not serious enough—there was too much playing around.
2. At least one member was sort of left out of things.
3. The atmosphere in the group was pleasant and congenial.
4. The leadership of this group was shared cooperatively by a number of members.
5. This group was highly motivated to do a good job.

There were thirty-seven such items, to which *O*s indicated the extent to which they agreed with the statement. Degree of agreement was indicated on a seven-point scale.

The corrected inter-observer reliability of the *O*s' PMRS varied from .56 to .87, with an average of .71.

In addition to the three kinds of datum obtained from the *O*s, a PMRS was also obtained from the *S*s. The same items were included, with the addition of some sociometric questions. *S*s were asked to indicate which group members they liked and which they did not like, and to rate the degree to which they were satisfied with their group as well as how productive they thought the group had been. (These latter were on the *O*s' PMRS as well.)

Assuming some validity for the data obtained, it was felt that they would collectively give a fairly adequate description of the behavior

of individual group members, the interrelationships between and among members, and the general characteristics of the group *per se*. The analysis consisted primarily of *t*-tests to determine the significance of differences between the *F*-plus and *F*-minus groups with respect to the measures used. The emphasis here is on behavioral and interactional variables and completely ignores the content area of the discussions.

Results

Trait Ratings. To determine whether or not the behavioral traits characteristic of individuals in the *F*-plus groups differed from those characteristics of individuals in the *F*-minus groups, *t*-tests of significance were computed for the mean differences between the behavioral trait ratings by *O*s for the two kinds of groups.

Only two of the sixteen *t*s are significant to the .10 level, indicating that one can have relatively little confidence that the same differences would occur in a repeat of the experiment. However, the differences are almost all in the predicted directions. There appears to be a definite tendency for the overall pattern of behavior in the two groups to differ. Equalitarian *S*s apparently behaved with greater effective intelligence, and more leadership behavior; with an insignificant tendency to show greater sensitivity to others, to behave in a more equalitarian manner, and to show greater goal-striving and security in the experimental situation.

Trait Ratings of Emergent Leaders. This study was intended to examine differences between the two kinds of group structure that developed, in addition to differences in the behavior of *F*-plus and *F*-minus *S*s. One aspect of group structure is the leadership of the group. While there was no formal leader in these groups, in almost every case one or more individuals could be described as having more to do with moving the group toward a goal than other group members had. That is, one or more *S*s could be described as the leader or leaders who emerged.

At the end of the sessions each *S* was asked to name in rank order the group members who "were most responsible for the group's solution to the problems encountered." The ranks received by each man from every other were added together. For each group one *S* was designated as the *emergent leader*, using as operational definition the person in the group with the highest average rank based on the rankings by *S*s themselves. The average trait ratings for the leaders of the

eight *F*-plus groups were compared with the ratings of the leaders of the eight *F*-minus groups.

Of the sixteen *t*s, seven are significant at the .05 level or beyond. This strongly supports the hypothesis that the persons who emerge as leaders in groups composed of equalitarian individuals behave differently from those who emerge in groups composed of authoritarian individuals. The leaders of the *F*-minus groups were significantly more sensitive to others, showed more leadership, contributed significantly more to moving their groups toward the group goal, showed greater effective intelligence, showed less concern with soliciting friendly attitudes from other group members, and were more submissive in their attitudes toward other group members (i.e. they were more apt to take suggestions or directions from other members).

Other differences, while less significant, nevertheless contribute to a description of the differences in the pattern of behavior observed in the two kinds of group. Emergent leaders of the *F*-minus groups were more friendly, exhibited more goal-striving, were less aggressive, less autocratic, and showed less tendency to isolate themselves from the group.

Behavior Category Results. It will be recalled that during the group sessions *O*s continually categorized and recorded behavioral acts by means of a Stenotype system of interaction recording. Differences between the frequencies of occurrence of each of the categories in the two groups is assumed to indicate behavioral differences of a more minute nature than those described although previous research has shown that the trait ratings and behavioral categories are highly related (Carter, Haythorn, Meirowitz, and Lanzetta, 1951b).

One of the problems involved in using this kind of interaction recording is the relatively high degree of unreliability introduced by the process of categorizing. This particular problem becomes more acute as the number of categories increases and the difference in meaning between some of the categories becomes smaller. The more categories there are, the more areas of overlap there are between categories, resulting in a higher probable frequency of observer disagreement. In the present case, this problem has been reduced somewhat by combining categories having some essential similarity into category indices. This procedure also helps to solve a second problem in this sort of interaction recording—namely, that of the extremely infrequent occurrence of some categories.

In Table 1 the means and *t*-tests of the significance of the differences between means are presented for the behavior categories re-

Table 1. *Differences in Recorded Behavior between High F and Low F Groups.*

Category and Index Names	Group Means ($N = 8$) F+ Groups	($N = 8$) F− Groups	t
I *Friendly Acts*	4.28	5.66	1.52 (F−)
(4) Shows friendliness	3.49	4.87	1.57
(5) Praises, bestows high status	0.79	0.79	0.00
II *Positive Affect Acts*	0.72	15.89	2.69 (F−)***
(1) Agrees	4.85	8.01	2.24 (F−)**
(2) Shows satisfaction	0.31	0.61	2.25 (F−)**
(9) Supports others	1.28	1.61	1.16 (F−)
III *Direction-Taking Acts*	1.33	1.13	0.59 (F+)
(20) Follows suggestion or direction	0.71	0.50	1.54 (F+)
(21) Concedes point of another	0.62	0.62	0.04 (F−)
IV *Self-Emphasizing Acts*	9.74	11.50	0.60 (F−)
(46) Interrupts	2.61	2.62	0.01 (F−)
(47) Calls for attention to self	1.78	2.18	0.76 (F−)
(49) Gives example from past experience	2.18	1.75	0.51 (F+)
(52) Supports own opinion or proposal	3.17	4.95	1.95 (F−)*
V *Asking for Suggestion or Sanction*	2.27	2.38	0.18 (F−)
(34) Asks for suggestion or direction	1.33	1.06	0.88 (F+)
(14) Sanction-seeking proposal	0.94	1.32	0.99 (F−)
VI *Asking for Group Evaluation*	3.55	5.45	1.96 (F−)*
(11) Asks for expression of opinion	2.61	4.13	2.31 (F−)**
VII *"Democratic" Acts*	5.08	6.70	1.40 (F−)
(12) Mediates, intercedes	0.20	0.24	0.11 (F−)
VIII *Directive Acts*	2.85	1.75	1.77 (F+)*
(40) Tells another to do something	2.48	1.64	1.79 (F+)*
(41) Gives bald command	0.37	0.11	1.37 (F+)
IX *Problem-Orientation Acts*	1.62	1.88	0.36 (F−)
(22) Expresses understanding	0.34	0.55	1.12 (F−)
(33) Asks for orientation	0.55	0.50	0.10 (F+)
(61) Expresses confusion	0.72	0.83	0.34 (F−)
X *Hostile Acts*	1.24	1.18	0.11 (F−)
(63) Deflates others	0.44	0.39	0.31 (F+)
(64) Expresses aggression or anger	0.44	0.17	1.57 (F+)

Table 1 (cont.)

	(65) Expresses negativism, blocks	0.37	0.62	1.70 (F−)
XI	*Negative Affect Acts*	5.11	6.63	0.87 (F−)
	(60) Expresses dissatisfaction, frustration	0.86	0.91	0.14 (F−)
	(62) Disagrees, argues	3.02	4.54	1.39 (F−)
XII	*Initiating and Integrating Acts*	2.55	3.15	1.01 (F−)
	(30) Initial acts	1.01	1.32	1.99 (F−)*
	(37) Integrates group behavior	1.54	1.83	1.14 (F−)
XIII	*Diagnosing and Clarifying Acts*	3.67	5.70	2.26 (F−)**
	(35) Diagnoses situation, makes interpretation	0.81	1.64	2.93 (F−)***
	(38) Clarifies, gives orientation	2.85	4.06	1.87 (F−)*
XIV	*General Participation Acts*	88.15	80.10	0.62 (F+)
	(31) Suggests course of action	14.97	14.72	0.14 (F+)
	(50) Performs manual work unit	1.46	1.34	0.34 (F+)
	(51) Gives factual information	11.53	9.66	0.94 (F+)
	(53) Gives qualitative evaluation	15.92	23.31	2.05 (F−)*
	(55) Writes group responses	10.00	9.34	0.35 (F+)
	(56) Role-plays	19.11	10.04	0.93 (F+)
	(57) Reads aloud written responses	15.16	11.69	1.15 (F+)
XV	*Self-Isolating Acts*	2.22	0.98	1.91 (F+)*
	(48) Indicates independence	0.36	0.24	0.46 (F+)
	(75) Withdraws; inattentive behavior	1.86	0.76	2.17 (F+)**
XVI	*Withdrawing and Out-of-Field Activity*	11.07	3.93	2.44 (F+)**
	(76) Out-of-field activity	9.21	3.17	2.16 (F+)**
XVII	*Tension Release and Out-of-Field Activity*	19.03	9.34	1.98 (F+)*
	(8) Shows tension release	9.82	6.07	1.45 (F+)
	Separate Categories			
	(32) Asks for factual information	5.25	4.40	1.28 (F+)
	(70) Meditates, thinks silently	4.50	5.42	0.96 (F−)
	(13) Unintelligible verbal behavior	2.62	2.42	0.41 (F+)
	Total Categories for Interaction Period	169.02	157.08	0.76 (F+)

* Significant at .10 level. ** Significant at .05 level. *** Significant at .02 level.

corded for all members of the groups. They represent the average number of times a particular category or category index was recorded by one *O* for a single *S*, and are assumed to indicate the number of times the average group member engaged in the kind of behavior subsumed under the category.

Inspection of Table 1 reveals that of the sixty-one *t*-tests computed, eighteen are significant at the .10 level and nine of these are significant at the .05 level or better. This is roughly three times the number of significant *t*s expected by chance alone, and suggests that the behaviors occurring in the two kinds of group differed significantly. The confidence that one can place in the reliability of these differences is increased by the fact that they are predominantly in the directions predicted. The only significant exceptions to this are the findings that *F*-minus *S*s supported their own proposals more (category 52), initiated more activities (category 30), and gave more opinions or qualitative evaluations (category 53). No predictions were made regarding the latter two, but it was predicted the *F*-plus *S*s would engage in more "supporting one's own proposals." It would appear that all three of these mispredictions can be accounted for by the interpretation that *F*-minus *S*s were more involved in the task and contributed more to its completion.

In addition to the differences noted above as misprediction, Table 1 indicates that *F*-minus *S*s also engaged in more "positive affect acts" (Index II), including more agreeing (category 1), and more expressions of satisfaction (category 2). They indicated more concern for the feelings of others by asking for group evaluation more frequently (Index VI), which included more asking for expressions of opinion (category 11) and more "sanction-seeking proposals"—example: "Do you think we should . . ." (category 14). They were less likely to engage in directive acts (Index VIII), which subsumes telling another to do something (category 40) and the less frequent "bald command" giving—example: "Write that down!" (category 41). These results are thought to reflect what is usually implied as the essential differences between "democratic" and "autocratic" group atmospheres (Lewin, Lippitt, and White, 1939).

F-minus *S*s also engaged in more "diagnosing and clarifying acts" (Index XIII), which included diagnosing the situation and making interpretations (category 35) and clarifying or orientation-giving acts (category 38). This set of results was predicted on the basis of the hypothesis that authoritarians are anti-introspective, and that behavior falling under Index XIII, especially as it occurs in a discussion

problem of this nature, is of a reflective nature that would be alien to the *F*-plus *S*s. This result is probably indicative of a greater intellectual competence of the *F*-minus *S*s in dealing with this kind of a problem and has been noted above with regard to the higher effective intelligence ratings of the *F*-minus *S*s.

Indices XV (self-isolating acts), XVI (withdrawing and out-of-field activity), and XVII (tension release and out-of-field activity) convincingly support the interpretation that *F*-plus *S*s were less involved in the task than the *F*-minus *S*s were. *F*-plus individuals engaged in significantly more withdrawing and inattentive behavior (category 75) and out-of-field activity (category 76). The authoritarian groups were more likely to play darts during the group session, engage in rowdiness and joking, and discuss matters irrelevant to completion of the task.

Behavior Category Results for Emergent Leaders. As with the trait ratings, it is appropriate here to ask whether or not and in what ways the persons who emerged as leaders in the *F*-plus groups differed behaviorally from those who emerged in the *F*-minus groups. Behavior category means and tests of the significance of differences between means for the emergent leaders only (as defined operationally above) are presented in Table 2. Six of the forty-three categories yield significance levels of .05 or beyond, whereas only 2.15 would be expected by chance.

The differences between the behaviors recorded for emergent leaders in the two kinds of groups are similar to those between the behaviors recorded for the average members of the groups. Persons who emerged as leaders in the *F*-minus groups showed more friendliness and more satisfaction, indicated more concern with the opinions and feelings of others by asking for expressions of opinion more and by making their proposals contingent on the sanction of the group. They also initiated more activity and made more diagnoses and interpretations than did the emergent leaders of the *F*-plus groups. The leaders of the *F*-plus groups engaged in significantly more "telling another to do something" acts. Other differences reported in Table 2 approach significance, the overall pattern indicating that *S*s who emerged as leaders in the *F*-minus groups were more concerned with the feelings and opinions of others, contributed more to the completion of the group's task, and were less apt to give authoritative direction to others. The *F*-minus leaders more frequently prefaced their proposals for action with some phrase such as, "Why don't we . . ." or, "One thing we might do is . . ."

Table 2. *Differences in Recorded Behavior between Emergent Leaders in High F and Low F Groups.* [Abridged.]

Category Names	Leaders' Means ($N = 8$) F+ Leaders	($N = 8$) F− Leaders	t
(4) Shows friendliness	3.77	5.60	1.87 (F−)*
(5) Praises, bestows high status	0.98	1.18	0.47 (F−)
(1) Agrees	6.05	8.57	1.54 (F−)
(2) Shows satisfaction	0.28	0.83	2.22 (F−)**
(9) Supports others	1.25	1.36	0.33 (F−)
(20) Follows suggestion or direction	0.55	0.58	0.11 (F−)
(21) Concedes point of another	0.44	0.91	1.23 (F−)
(46) Interrupts	2.93	2.45	0.36 (F+)
(47) Calls for attention to self	3.25	3.24	0.01 (F+)
(49) Gives example from past experience	5.00	2.62	0.81 (F+)
(52) Supports or elaborates own proposal	5.19	6.04	0.41 (F−)
(34) Asks for suggestion or direction	1.06	2.31	1.31 (F−)
(14) Sanction-seeking proposal	0.92	2.59	2.23 (F−)**
(11) Asks for expression of opinion	3.82	9.26	2.24 (F−)**
(12) Mediates, intercedes	0.08	0.34	1.50 (F−)
(40) Tells another to do something	4.23	2.12	2.27 (F+)**
(41) Gives bald command	0.84	0.16	1.30 (F+)
(22) Expresses understanding	0.33	0.56	0.87 (F−)
(33) Asks for orientation	0.69	0.47	0.61 (F+)
(61) Expresses confusion, lack of orientation	1.24	0.98	0.52 (F+)
(63) Deflates others	0.70	0.45	0.62 (F+)
(64) Expresses aggression or anger	0.61	0.11	1.32 (F+)
(65) Expresses negativism, blocks	0.50	0.56	0.21 (F−)
(60) Expresses dissatisfaction, frustration	0.55	0.73	0.57 (F−)
(62) Disagrees, argues	6.00	5.55	0.24 (F+)
(30) Initial acts	1.06	2.84	2.67 (F−)***
(37) Integrates group behavior	2.64	3.96	1.23 (F−)
(35) Diagnoses situation, makes interpretation	0.84	2.26	2.87 (F−)***
(38) Clarifies, gives orientation	4.67	6.99	1.68 (F−)
(31) Suggests course of action	18.85	17.49	0.47 (F+)
(50) Performs manual work unit	0.89	2.00	1.61 (F−)
(51) Gives factual information	15.71	14.99	0.24 (F+)
(53) Gives qualitative evaluation	23.53	17.94	1.05 (F+)
(55) Writes group responses	6.02	15.50	1.43 (F−)
(56) Role-plays	41.11	15.68	1.00 (F+)

Table 2 (*cont.*)

Category Names	Leaders' Means ($N = 8$) F+ Leaders	($N = 8$) F− Leaders	t
(57) Reads aloud group responses	24.17	19.61	0.79 (F+)
(48) Indicates independence	0.43	0.22	0.69 (F+)
(75) Withdraws; inattentive behavior	1.55	0.40	1.18 (F+)
(8) Shows tension release	11.14	4.63	1.50 (F+)
(32) Asks for factual information	5.92	5.73	0.14 (F+)
(70) Meditates, thinks silently	2.40	3.65	1.60 (F−)
(13) Unintelligible verbal behavior	2.84	2.16	0.89 (F+)
Index II Positive Affect Acts (1, 2, 4, 5, 9)	12.34	17.54	2.53 (F−)**
Total Categories per Interaction Period	179.49	190.05	0.47 (F−)

* Significant at .10 level.
** Significant at .05 level.
*** Significant at .02 level.

Post-Meeting Reaction Sheet Results. At the end of a group session, *O*s and *S*s both filled out a questionnaire (PMRS) asking them to indicate the degree to which they agreed to several statements about groups (for examples, see above). This instrument was included primarily to get measures of aspects of group behavior that are not easily described as behaviors of individual members. They are thought to represent more global descriptions than either the behavior categories or the trait ratings. Results of the analysis of the PMRS are given in Table 3.

It was expected, of course, that there would be differences between the *O*s' and *S*s' responses to the PMRS. The *S*s were responding on the basis of limited experience in their own group, whereas the *O*s had a baseline of several groups from which they could make comparisons. Considering the possible effects of this fact, the results of the two sets of *t*-tests are not as divergent as one might have predicted.

Rather than test differences on each item in the questionnaire, the items were grouped on an *a priori* basis into several indices, and the index means were used in the analysis. The *t*s in Table 3 indicate that the *O*s rated the *F*-minus groups as having greater competence of members (IX), greater motivation toward the group goal (XIV), greater striving for equal participation (VI), and *O*s were less dissatisfied with the goal progress of the *F*-minus groups (I). *F*-plus *S*s

Table 3. *Differences between High F and Low F Groups on Post-Meeting Reaction Sheet Indices.*

	Index Names	*Ss'* PMRS Group Means ($N = 8$) F+ Groups	($N = 8$) F− Groups	t	
I	Dissatisfaction with Goal Progress	3.29	2.69	1.93	(F+)*
II	Degree of Equal Participation	4.02	4.27	0.92	(F−)
III	Degree of Personality Conflict	2.34	2.56	0.93	(F−)
IV	Degree of Informal Friendliness	5.39	5.18	0.66	(F+)
V	Definiteness of Leadership	4.26	4.04	0.80	(F+)
VI	Striving for Equal Participation	5.80	5.50	1.15	(F+)
VII	Satisfaction with Leadership	5.56	5.38	0.81	(F+)
VIII	Degree of Conflict within Group	2.99	3.38	1.42	(F−)
IX	Competence of Members	5.56	5.61	0.26	(F−)
X	Morale	5.80	5.76	0.12	(F+)
XI	Group Productivity	6.62	6.44	0.55	(F+)
XIV	Motivation toward Group Goal	4.53	4.84	0.71	(F−)
XV	Formation of Cliques	2.09	2.16	0.21	(F−)
XXI	Differences of Opinion	3.73	4.59	3.633	(F−)***
XXII	Competition among Members	2.31	2.78	3.524	(F−)***
XXIII	Lack of Cooperation	2.84	2.12	2.175	(F+)**

	Index Names	*Os'* PMRS F+ Groups	F− Groups		
I	Dissatisfaction with Goal Progress	4.02	2.70	2.14	(F+)**
II	Degree of Equal Participation	2.85	3.05	0.51	(F−)
III	Degree of Personality Conflict	3.52	3.40	0.23	(F+)
IV	Degree of Informal Friendliness	4.92	4.89	0.07	(F+)
V	Definiteness of Leadership	4.37	4.62	0.66	(F−)
VI	Striving for Equal Participation	3.09	4.64	2.54	(F−)**
VII	Satisfaction with Leadership	6.18	5.52	1.36	(F+)
VIII	Degree of Conflict within Group	3.23	3.55	0.58	(F−)
IX	Competence of Members	4.82	5.58	1.99	(F−)*
X	Morale	4.16	4.75	1.00	(F−)
XI	Group Productivity	5.58	6.12	0.89	(F−)

Table 3 (*cont.*)

	Index Names	*Os*' PMRS F+ Groups	*Os*' PMRS F− Groups		
XII	Formality of Group Structure	2.28	2.42	0.33	(F−)
XIII	Communication Effectiveness	4.80	5.35	1.30	(F−)
XIV	Motivation toward Group Goal	4.02	5.60	3.19	(F−)***
XV	Formation of Cliques	2.95	2.85	0.16	(F+)
XXI	Differences of Opinion	3.22	3.90	1.26	(F−)
XXII	Competition among Members	2.68	3.22	0.88	(F−)
XXIII	Lack of Cooperation	3.80	3.18	0.87	(F+)

* Significant at .10 level.
** Significant at .05 level.
*** Significant at .02 level.

were more dissatisfied with their goal progress than were *F*-minus *Ss* (I) and rated their groups as lacking cooperation to a greater extent than did the *F*-minus (XXIII). *F*-minus *Ss* described their groups as having more differences of opinion (XXI) and more competition among members (XXII). With one exception, *Os* and *Ss* agreed on the direction of the differences for each index yielding a significant *t*. The one exception was with regard to Index VI, "striving for equal participation." *Os* described the *F*-minus groups as striving for equal participation significantly more than the *F*-plus, but the *F*-plus *Ss* rated themselves higher on the index than did the *F*-minus *Ss*. No completely satisfactory *ad hoc* interpretation of this reversal has been achieved. It may be that *F*-minus *Ss* were more able to criticize themselves on this item than were the *F*-plus. There are theoretical reasons for expecting equalitarian individuals to be more sensitive to equality of participation than authoritarian individuals, and by definition they would be expected to have a higher level of aspiration for their groups in this respect.

Discussion

The results indicate that behavioral differences between *Ss* in groups composed of high *F* or "authoritarian" individuals and those in groups composed of low *F* or "equalitarian" individuals can be reliably predicted. Differences between the behavioral traits and the behaviors manifested by leaders who emerged in the two kinds of groups were more marked than those between high *F* and low *F* group

members generally. Differences were predominantly in the predicted directions.

The equalitarian *S*s were apparently more effective in dealing with the task and problem than were the authoritarian. This was reflected in higher ratings of effective intelligence, leadership, and goal-striving, as well as the more frequent recording of "diagnosing and clarifying acts," in the *F*-minus groups.

Since Lewin, Lippitt, and White's (1939) frequently cited study, social psychologists have showed much concern with what have been called "autocratic" and "democratic" group climates. It was, of course, expected that an "autocratic" climate would prevail in groups composed of authoritarian individuals, while equalitarian individuals would develop a "democratic" group climate. The fact that *F*-minus *S*s engaged in more "positive affect acts," showed greater concern for the feelings of others by asking for expressions of opinion more frequently, and engaged in fewer directive acts was interpreted as reflecting the essential differences between "autocratic" and "democratic" group climates.

The behavior manifested by leaders of the two kinds of group is of particular interest in the study of the behavior of individuals in groups. Emergent leaders of the *F*-minus groups were rated as significantly more secure in the experimental situation, more equalitarian in their attitudes toward other group members, more sensitive to others, and as showing a higher degree of leadership, greater effective intelligence, and less striving for group approval than the leaders of the *F*-plus groups. The fact that emergent *F*-minus leaders received higher ratings on leadership than emergent *F*-plus seems inconsistent with the other results, but the type of leadership manifested by *F*-minus leaders was markedly different from that manifested by *F*-plus leaders. The behavioral category results indicate that *F*-minus leaders were significantly more likely to make proposals subject to group sanction and significantly less likely to tell another to do something. *F*-minus leaders also more frequently asked for the opinion of others, and showed more "positive affect." This generally supports the hypothesis that equalitarian leaders were more effective in dealing with the problem presented, and that they engaged in behaviors conducive to a "democratic" group atmosphere.

At a very broad level of generality, the results suggest that group "cultures" may derive from the modal personality characteristics of group members, and particularly of group leaders. This generalization is somewhat similar to Kardiner's (1945) concept of the "basic per-

sonality" of a culture. The prediction of social behavior of individuals from personality measures may be improved if one takes in account the total composition of the group in terms of the modal personality pattern, rather than if one attempts to predict the behavior of a given individual when the personalities of other group members are unspecified.

Summary

1. *Ss* homogeneous with respect to scores on the California *F*-scale and Cattell's Q_1-scale were placed in four-man groups and given the task of discussing, composing, role-playing, and recording a script for a movie scene involving a human relations problem. Eight groups of high *F* or "authoritarian" and eight of low *F* or "equalitarian" *Ss* were run.

2. Differences between the groups with respect to rated behavioral traits, recorded behavioral acts, and responses to a Post-Meeting Reaction Sheet were analyzed. Significant differences between high *F* and low *F Ss* in the predicted directions were found, indicating that a more "democratic" group culture prevailed in the low *F* groups, and that the low *F* groups were more effective in dealing with the problem.

3. Significant differences—more marked than for groups as a whole —were found between the emergent leaders of the two kinds of group, indicating that a qualitatively different kind of leadership occurs in groups composed of personalities at opposite ends of the authoritarian-equalitarian dimension. Emergent leaders in the low *F* groups were more sensitive to others, more effective leaders, more prone to making suggestions for action subject to group sanction, and less likely to give direct orders to others.

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As any variable in scientific endeavor becomes better known and more amenable to testing, it not only is extended into additional areas of potential relevance, but there will be attempts to define the variable more precisely and to improve the methods by which it can be measured. In the following research paper, Bernard M. Bass asks the potentially embarrassing question: "Is the correlation between scores on the F scale and scores on other scales due to what researchers have thought or merely to a tendency of test-takers to agree to almost anything?"

Is there a general tendency for subjects in psychological research to say yes to questions about broad social issues or about general aspects of human behavior? And if there is such a tendency, what does this mean for past research on the F scale? And what does it mean about the way in which we must refine instruments for personality research?

AUTHORITARIANISM OR ACQUIESCENCE?*

Bernard M. Bass

Since the appearance of *The Authoritarian Personality* (Adorno *et al.*, 1950), the F scale has become one of the most widely used social psychological research tools. The authors and most writers subsequently believed that the items of the scale had considerable content validity since they were concerned with conventional mores,

* From *Journal of Abnormal and Social Psychology,* Vol. 51, 1955, pp. 616–623. By permission.

submission to authority, and power orientation. Empirical validation studies, along with internal consistency analyses, appeared to corroborate these conclusions since the F scale was found to correlate to some extent with other psychometric measures such as rigidity (Rokeach, 1951), dogmatism (Rokeach, 1952), and ethnocentrism (Adorno *et al.*, 1950). Yet, the authors regarded the F scale as an "indirect" assessment. Hence, they intimated that it contained more than content validity. Cohn (1952), however, showed that college students readily could distort the results, indicating the scale lacked disguise.

Purpose

The present study tested the hypothesis that performance on the F scale had less to do with the content validity of the items than with *the response set to acquiesce to any generalizations about social issues —authoritarian or equalitarian.* Thus, it was proposed that scores on the F scale and any other inventories concerned with generalizations about social relations, morals, prejudice, custom, and status relations are primarily measures of the tendency to *agree with any* opinionated or doctrinaire statements about human affairs. Verification of the hypothesis would cast new light on the findings of correlations between the F and other similarly constructed scales.

Previous Conceptualizations

A number of studies have appeared in the last few years which suggest that a more parsimonious concept than authoritarianism may be used in accounting for personality differences of significance in understanding fascist or antidemocratic tendencies.

Dogmatism, misanthropy, xenophobia, suggestibility, and acquiescence are some of the basic concepts that have been offered.

Dogmatism. Analyses (1951, 1952, 1954) of the F scale by Rokeach led to the inference that "authoritarianism" as measured by the F scale was a reflection in the personal-social relations area of a more generalized personality trait of dogmatism. Rokeach (1952) was able to construct a Dogmatic Personality Scale composed of statements concerning overidentification with a cause, guilt, egocentrism, etc., which correlated .67 with the F scale and .51 with an inventory composed of both reactionary and radical opinionated

statements, matched for opposite content, about international affairs, God, socialized medicine, etc.

Misanthropy. Sullivan and Adelson (1954) suggested that misanthropy might be the desired, more generalized, concept. They found a correlation of .43 between assenting to derogatory statements about ethnic minorities and assenting to derogatory statements about people in general.

Xenophobia. Campbell and McCandless (1951) advanced xenophobia as the more basic concept. They found the E and F scales to correlate highly with each other and with a scale measuring a general dislike of others.

Suggestibility. Guba and Getzels (1954) submitted 19 "inner-directed" and 19 "outer-directed" slogans which were associated with opposing behavioral tendencies to a group of subjects. The subjects tended to accept slogans of either direction or reject both types of slogans. The tendency to accept any type of slogan also correlated significantly with scores on the F scale. The authors concluded that both their scales were measures of suggestibility implying, then, that scores on the F scale were associated with the tendency to be suggestible.

Acquiescence. Cohn (1953) found a correlation of .41 between the F scale and the tendency to respond "yes" to MMPI items. This implied that acquiescence—the tendency to concur with any statement—could account for some of the variance of the F scale. Acquiescence appeared to explain an unpublished correlational analysis of 13 scales based on 20 aphorisms each by the present author. All the scales, unfortunately, were scored in the same direction on any given scale. The author obtained an intercorrelation matrix which contained only positive correlations although the scales involved items in such diverse and opposite domains as misanthropy and affiliation, aggression and nurturance, and self-abasement and achievement.

Subsequent to the completion of the present study, the author was directed to an Italian publication by Ancona (1954a) in which he describes the development and use of a scale composed of 15 items from the F scale and 15 "reciprocals" of the same items in order to measure the response set to acquiesce. He obtained significant negative relations between this means of measuring acquiescence and projective measures of the need for achievement (Ancona, 1954a, 1954b).

Acquiescence might account also for Hardesty's (1954) and Block and Block's (1951, 1952) results. Hardesty found that more authoritarian subjects tend to react faster in associating words involving abstract social issues. Block and Block reported that subjects who acquiesce and score high on the E scale tend to set norms earlier in the autokinetic experiment (1951), and to accept more readily suggestions from the experimenter (1952).

Construction of the G Scale

For each of 29 statements in the original F scale, a statement was placed in a newly constructed scale, henceforth referred to as the G scale. Each new statement was opposite in meaning—or as opposite as the author could make it—to an original statement of the F scale. In some cases, it was merely enough to insert or remove the word "not" or "no" in the original statement to obtain its opposite. In other cases, extensive revision was necessary.

Each of the statements of the F scale was paired with its opposite in the G scale and presented to a class of 63 students in introductory sociology. To reduce "halo" effect in the ratings, 6 pairs of statements in agreement with each other were interspersed among the 29 pairs of opposing statements.

The subjects were asked to rate each *pair* of statements using the following schedule: 0—Identical in meaning; 1—More similar than opposed in meaning; 2—Neither similar nor opposed in meaning; 3—More opposed than similar in meaning; 4—Completely opposite in meaning.

Table 1 lists the 29 pairs of statements in order of the median of ratings assigned to each pair by the subjects. In the presentation of the pairs of statements to the subjects, the order was randomized and F and G scale items were presented either first or second in random sequence.

The six pairs of similar statements, employed to reduce halo, which are not listed in Table 1 had median ratings of 2.52, 1.90, 1.01, .93, .37, and .16, respectively.

Of the original 29 pairs of F and G items, only the last pair listed in Table 1 had a median "opposition" value which indicated it was regarded by the 63 judges as a pair of statements more similar than opposed in meaning. This pair, which failed to be more opposite than similar, was eliminated from further consideration in the remainder of this study.

Comparison of the F and G Scales

One statement from each of the 28 pairs of opposite statements was placed in either Form 1 or Form 2. If a statement of the F scale was placed in Form 1, its opposite G scale statement was placed in Form 2 and vice versa. Each form contained 28 statements in all, half of which were from the original F scale and half were from the G scale without any paired opposites appearing in the same form.

Subjects. Eighty-four students in various undergraduate psychology classes, who, in general, had no previous knowledge of studies using the F scale, were administered Forms 1 and 2. Sixty-three of these subjects were given Form 1 first and Form 2 a week later. Twenty-one students received Form 2 first and Form 1 a week later. The standard instructions given by Adorno *et al.* (1950) were used in administering both forms.

Method of Scoring. The pairs of statements in opposition were sorted into four "levels of opposition" according to their median rated degree of opposition. Seven pairs of statements were placed at each

Table 1. *The Paired Opposites of the F and G Scales in Order of Median Degree of Opposition as Rated by 63 Judges.*

Median Rating of Degree of Opposition	F Scale	G Scale
3.99	People can be divided into two distinct classes, the weak and the strong.	People cannot be divided into two distinct classes, the weak and the strong.
3.97	The business man and the manufacturer are much more important to society than the artist and the professor.	The artist and the professor are much more important to society than the business man and the manufacturer.
3.97	Familiarity breeds contempt.	Familiarity does not breed contempt.
3.96	Every person should have complete faith in some supernatural power whose decisions he obeys without question.	No person should have complete faith in some supernatural power whose decisions he obeys without question.
3.95	It is best to use some prewar authorities in Germany to keep order and prevent chaos.	It is worst to use some prewar authorities in Germany to keep order and prevent chaos.

Table 1 (*cont.*)

Median Rating of Degree of Opposition	F Scale	G Scale
3.92	Some people are born with an urge to jump from high places.	No people are born with an urge to jump from high places.
3.91	Human nature being what it is, there will always be war and conflict.	Human nature being what it is, universal peace will come about eventually.
3.87	No weakness or difficulty can hold us back if we have enough will power.	Weaknesses and difficulties can hold us back; will power is not enough.
3.84	The wild sex life of the old Greeks and Romans was tame compared to some of the goings-on in this country, even in places where people might least expect it.	Some of the goings-on in this country, even in places where people might least expect it, are tame compared to the wild sex life of the Greeks and Romans.
3.83	Nobody ever learned anything really important except through suffering.	Nobody ever learned anything really important through suffering.
3.78	Homosexuals are hardly better than criminals and ought to be severely punished.	Homosexuals are not criminals and should not be punished.
3.75	Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them.	A person does not have to worry about catching an infection or disease just because many different kinds of people move around and mix together a great deal nowadays.
3.73	Sex criminals such as those who rape and attack children deserve more than mere imprisonment; such criminals ought to be publicly whipped, or worse.	Sex criminals such as those who rape and attack children should be treated as sick people, not publicly whipped or worse.
3.71	When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things.	When a person has a problem or worry, it is best for him to think about doing something about it, not be distracted by more cheerful things.

Table 1 (*cont.*)

Median Rating of Degree of Opposition	F Scale	G Scale
3.67	Wars and social troubles may someday be ended by earthquake or flood that will destroy the whole world.	Wars and social troubles may someday be ended by wisdom and education, not by an earthquake or flood that will destroy the whole world.
3.63	Some day it will probably be shown that astrology can explain a lot of things.	Astrology will never explain anything.
3.55	An insult to our honor should always be punished.	An insult to our honor should be studied, not punished.
3.51	Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.	Young people sometimes get rebellious ideas. As they grow up they ought to try to carry them out and not be content to get over them and settle down.
3.51	What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith.	What this country needs most, more than a few courageous, tireless, devoted leaders in whom the people can put their faith, is better laws and political programs.
3.39	No sane, normal, decent person could ever think of hurting a close friend or relative.	A sane, normal decent person might have to hurt a close friend or relative.
3.33	Nowadays more and more people are prying into matters that should remain personal and private.	Nowadays, not enough investigating of personal and private matters is done.
3.24	Most people don't realize how much our lives are controlled by plots hatched in secret places.	Our lives are not at all controlled by plots hatched in secret places.
3.10	What a youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country.	What a youth needs most is to be free to make up his own mind, to be flexible and to work and fight for what he considers right personally even though it might not be best for his family and country.

Table 1 (*cont.*)

Median Rating of Degree of Opposition	F Scale	G Scale
2.96	Obedience and respect for authority are the most important virtues children should learn.	Self-reliance, respect for democracy and lack of need to submit to authority are the most important virtues children should learn.
2.93	Science has its place, but there are many important things that can never possibly be understood by the human mind.	Because of science, it will be possible for the human mind to understand most important things.
2.87	There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.	Many fine people honestly could never bring themselves around to feeling a great love, gratitude, and respect for their parents.
2.57	If people would talk less and work more, everybody would be better off.	If people would discuss matters more before acting, everybody would be better off.
2.53	A person who has bad manners, habits, and breeding can hardly expect to get along with decent people.	Decent people can get along with a person who has bad manners, habits, and breeding.
1.86	Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people.	Most of our social problems would be solved if we could somehow cure or help the immoral, crooked, and feeble-minded people.

of the four levels. The midpoint of the range of medians for each of the four levels was 3.95, 3.79, 3.50, and 2.88 respectively.

An F subscale score and a G subscale were obtained for each subject at each of the four levels. This was done by scoring the 7 statements of each scale at each level in the manner outlined by Adorno *et al.* (1950) for the original F scales. Values ranging from +3 for strong agreement with the statement by a subject to −3 for strong disagreement were assigned each response. A constant of 3 was added to eliminate negative values and a subject's total score for a given subscale was divided by 7 to determine his average agreement or opposition to a given set of 7 statements which composed an F or

G subscale. A score of 3.0 implied neutrality. Subscale scores could range from 0.0 to 6.0.

Scoring Results. Table 2 presents the mean scores for all subjects on all subscales.

The grand mean value of 3.00 for the entire group confirmed the supposition that the contents of the F and G scales were on the whole opposite in meaning. When added algebraically for the group as a whole, the scales served to cancel each other.

Table 2. *Mean Scores on the F and G Subscales and Their Composites and Their Correlations by Levels of Opposition.*

Midpoint of the Range of Medians of Opposition Ratings	Mean Scores			Correlations		
	F Subscales	G Subscales	Composite F + G Subscales	r_{FG}	r_{FT}	r_{GT}
3.95	2.67	2.80	2.73	−.52	.64	.32
3.79	2.36	3.31	2.84	−.29	.69	.45
3.50	2.89	3.04	2.96	−.24	.72	.51
2.88	3.36	3.60	3.47	.05	.84	.58
Combined scale	2.83	3.18	3.00	−.20	.85	.34

Correlation between Authoritarianism and Acquiescence

At each level of opposition, the F and G subscale scores were correlated with each other. Formula 13.34 in Guilford (1950, p. 358) was used to estimate the correlations between F and the total score based on the algebraic sum of F and G. The correlations between the G subscale scores and the combined scores from F and G subscales were estimated in the same way. Table 2 shows these correlations which indicate that F scale scores contributed more to the total or acquiescence score than the G scale scores. This is consistent with and may be explained by the fact that the corrected split-half reliability of the F scale was .81 while the corrected split-half reliability of the G scale was only .50.

As statements became less opposite in meaning, response set to acquiesce[1] increased consistently according to the correlations listed in Table 2 between F subscale scores and F + G subscale scores and

[1] The response set to acquiesce should not be confused with the tendency to increase in agreement. All subjects increased in their agreement with statements at lower levels of oppositions. But, in addition, individual differences in tendency to agree with all items became more consistent with statements at lower levels of opposition.

between G subscale scores and F + G subscale scores. If it can be assumed that statements drawn from less opposite pairs occupy less extreme positions on the authoritarian-equalitarian continuum than those statements drawn from pairs in great opposition, then these results are consistent with Cronbach's (1950) generalization that response set increases as items become more ambiguous. The present results suggest that response set to acquiesce increases as statements become more ambivalent. It also is consistent with unpublished results obtained by the author which indicate that decrease in educational level of respondents correlates with the tendency to agree with any fairly abstract aphorisms. (This ambiguity-acquiescence relationship may help to account for the negative correlation obtained by Levinson between the F scale and intelligence test scores (Adorno *et al.*, 1950).)

Table 3. *Factor Matrix.*

	Factor		
Scale	I Acquiescence	II Authoritarianism	r_{11}*
F	.77	.47	.81
G	.53	−.47	.50

* Split-half reliability.

From the results shown in Table 3, it is inferred that the factor with which the F and G scales correlate equally but opposite in direction concerns authoritarian-equalitarian content. The factor with which both the F and G scales correlate positively is regarded as a factor measuring the tendency to acquiesce to both authoritarian and equalitarian generalities. If these factors are labeled correctly, then it is concluded (ignoring the possibility of content variance unique to the F scale, not found on the G scale) that 59 per cent of the variance of the F scale is accounted for by Factor I, Acquiescence, while only the remaining 22 per cent of the reliable variance of the F scale concerns Authoritarianism as found in Factor II. Thus, three-fourths of the reliable variance of the F scale appears to be a function of acquiescence.

Conclusions

Much has been made of the correlations between the F scale and various measures of ethnocentrism, intolerance, leadership ideology, misanthropy, and xenophobia. The present results suggest that the F scale will correlate highly with *any* set of slogans about social issues where items are all scored in the same direction. For example, if the

F scale, along with a series of only favorable generalizations about Negroes—preferably with some degree of ambivalence associated with each—are presented for approval or disapproval, the present results force us to predict that "authoritarians" will turn out to be much more "favorable" toward minority groups than heretofore suspected.

It must be made clear that the results of this study should not lead to rejecting the supposition that the F scale is measuring generalized personality tendencies which have been reported as associated with rigidity, intolerance for ambiguity, and conformity when these latter are measured by means other than concurrence with proverbs, generalizations, and maxims. The results do suggest that a large amount of the variance in the F test measures the generalized trait of *acquiescence,* not *authoritarianism.* Moreover, the results suggest that doubt should be cast on generalizations based solely on correlations between social attitude scales where all statements are scored in the same direction since a large percentage of the covariance may be due to this generalized tendency to acquiesce rather than to the particular contents of the scales.

Summary

The purpose of this study was to test the hypothesis that scores on the F scale and similarly constructed inventories are primarily measures of acquiescence rather than authoritarianism.

For each of the statements of the original F scale, opposite statements were composed to form the G scale. The degree was determined to which each of the statements was in opposition to its mate.

Response set to acquiescence was measured by obtaining each individual's tendency to support *both* F and G scale statements. An analysis of variance disclosed that, if individuals' fluctuations from one scale to another are ignored, they, the individuals, tend to differ significantly from each other in tendency to acquiesce. (Acquiescence is correlated more highly with the results of the F scale—a more reliable scale—than with the G scale.)

It appeared that response set to acquiesce increased as items became more ambivalent.

A factor analysis of the data indicated that approximately three-fourths of the reliable variance of the F scale was associated with an acquiescence factor while only one-fourth was attributable to a content factor of authoritarianism.

It is suggested that a much more parsimonious explanation can be given to account for the positive relations between authoritarianism,

misanthropy, xenophobia, and ethnocentrism, where all are measured by scores based on acceptance of generalizations about social affairs. It appears that these correlations may be due primarily to a response set to acquiesce to *any* generalizations about social issues. In turn, this response set may have significance for understanding personality, social attitudes, and problem-solving behavior.

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Data from the foregoing article by Bernard Bass, and from a whole line of other researches, make it eminently clear that response set is an important factor in determining scores on psychological tests and scales. Closer to our immediate concern here, there can be no doubt that an individual's tendency toward acquiescence contributes significantly to scores on the conventionally designed and administered F scale. Obviously, this matter calls for further study and analysis.

In the following article, Martha B. Clayton and Douglas N. Jackson give it further study and analysis—of a highly inventive kind. In articles not yet written about research not yet done, the matter undoubtedly will be further clarified. So does science advance. Meanwhile, we now face the question of the meaningfulness of the F scale and of authoritarianism as a variable. Should the F scale be abandoned? Must authoritarianism be redefined? And if the answers to both questions turn out to be yes, will the process of attaining such answers significantly advance the accumulation of knowledge?

EQUIVALENCE RANGE, ACQUIESCENCE, AND OVERGENERALIZATION*

Martha B. Clayton and Douglas N. Jackson

In this study we propose to appraise the effects of certain stylistic properties of attitude items and to show how consistent responses to item form, as well as to content, may reflect cognitive and personality variables. Specifically, we are interested in the response sets of acquiescence and overgeneralization and their relationship to the cognitive style of equivalence range.

Cronbach (1946, 1950) has pointed to the importance of the operation of response sets in tests and has indicated a number of ways in which they might be controlled, as by multiple-choice or forced-choice techniques. Recent evidence based on correlations of reversed and unreversed forms of the California F scale (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950), upon which the attitude measurements of this study are based, indicated that the F scale tends to elicit a response set to acquiesce which has a cumulative effect upon scores (Bass, 1955; Chapman and Campbell, 1957; Jackson and Messick, 1957, 1958; Jackson, Messick, and Solley, 1957; Leavitt, Hax, and Roche, 1955; Messick and Jackson, 1957, 1958; Shelly,

* From *Educational and Psychological Measurement*, Vol. 21, No. 2, 1961, pp. 371–382. By permission.

1956; and others). Christie, Havel, and Seidenberg (1958) have shown, however, that this response set can be reduced for some subjects if the extremely worded form as well as the content of the items is modified. Such results suggest that stylistic properties of items is an important response determinant in the F scale. Jackson and Messick (1958) have drawn a distinction between content and style in several personality measures, and have suggested, as did Cronbach (1946, 1950) and others, that stylistic consistencies in responses to item form might provide important indicants of personality variables. Jackson and Messick (1958) further suggested that an analysis of properties of F-scale items would require at least four different forms of the F scale—an absolutely-worded original; an absolutely-worded, logically reversed F scale; a probabilistically-worded original; and a probabilistically-worded reversed F scale. This would permit an analysis and evaluation of variance attributable to authoritarian content, and to the tendency to acquiesce to sweeping generalizations, as well as to the tendency to acquiesce to tentatively phrased statements. Messick and Frederiksen (1958) have demonstrated that it is feasible to partition the variance of the F scale into that associated with content and that associated with set, using one of the models reported by Helmstadter (1957). The present study also utilizes a Helmstadter model, and builds and expands upon the work of Messick and Frederiksen. The latter authors showed that reliable scores of acquiescent set could be obtained from a scale composed of original and reversed (Jackson and Messick, 1957) F-scale items, and that these set scores correlated with certain measures of intellectual abilities and of personality. The present study seeks to differentiate the set to acquiesce to cautiously-worded statements from the tendency to acquiesce to extremely-worded statements and to determine which, if any, of these components of response variance account for relationships with a cognitive and personality variable.

The general tendency to agree with items containing such statements as "every person should . . .," "no one ever . . .," "what the youth needs most . . .," etc., seems to involve a preference for broad conceptual categories, in which the respondent is willing to admit without exception a class of persons or events. On the other hand, disagreement with a heterogeneous set of extremely-worded items would perhaps suggest that the respondent might prefer to make finer distinctions to admit exceptions to sweeping generalizations. Differences in such preferences might not be limited to attitude questionnaire responses, but might reflect more general modes of cognitive functioning. This cognitive style might or might not be related to particular attitudes, but the evidence indicates (Rokeach, 1956) that

such preferences modify the form that attitudes may take, rather than showing a one-to-one relationship between cognitive style and belief.

Gardner (1953) has indicated that individual differences in cognitive styles in categorizing behavior might reflect personality differences. He found persons to be characterized by unique ranges of preferences for categories of objects which they were willing to identify as the "same." He suggested that these differences in equivalence range, at the extremes of the distribution, might determine the ways in which persons relate themselves to the world about them in their preferred modes of reality testing, in their ways of "knowing" the external world, and in their modes of affective response to persons and things.

One hypothesis investigated in this research involves the relationship between an overgeneralized set to endorse extremely-worded reversed and unreversed F-scale items and broad equivalence range. Since both tasks seem to involve preferences for either broad or narrow conceptual categories, positive correlations would be expected. The additional predictions may be stated as follows:

(a) A major portion of the reliable variance on the absolutely-worded F scale as well as on the probabilistically-worded F scale will be attributable to acquiescence.

(b) It is expected that acquiescence will be elicited more strongly on the F scale by extremely worded statements. Therefore, it is predicted that the positive correlation between agreements to reversed to agreements to unreversed absolutely-stated F-scale items will be larger than that between agreements to reversed and to unreversed probabilistically-stated F-scale items.

(c) When responses to item form and responses to content are differentiated, low correlations will be expected between the set and content scores for the absolute F scale as well as for the probabilistic F scale.

Method

The measures used were: (a) two parallel forms of a paper-and-pencil object sorting test, especially developed for this study to indicate equivalence range; (b) an absolutely-worded authoritarian scale consisting of adaptations of original and reversed F-scale items; and (c) a probabilistically-worded authoritarian scale consisting of adaptations of original and reversed F-scale items. This permitted a separation of F-scale variance attributable to the tendency to agree consistently with (a) absolutely-worded statements and with (b)

probabilistically-worded statements; as well as an appraisal of variance attributable to authoritarian content when worded (c) absolutely and (d) probabilistically.

Object Sorting Tests. These tests were based on the procedure developed by Gardner (1953), with the important exception that in the present study a written form of the test was employed. Each test consisted of the names of 50 familiar objects selected according to the following two criteria: (a) the objects were specific, generally movable ones with a definite location; (b) the objects could not easily permit more than one meaning. As nearly equivalent items as possible were employed to increase the likelihood of high parallel-form reliability.

The task involved placing into groups the names of the 50 familiar objects, which seemed to the subject to belong together for one particular reason. Gardner's instructions were followed closely. They required subjects to group the objects by actually writing down the names of the objects under categories labeled *A*, *B*, etc. A pilot study indicated that this method of grouping was preferable to that of writing *A*'s and *B*'s beside the names of the objects. The object sorting tests were scored by simply counting the number of groups required by each subject to categorize all of the objects.

A recent factor analysis (Sloane, 1959) of a variety of measures thought to reflect equivalence range indicated that the loadings on the equivalence range (sorting) factor of these paper-and-pencil object sorting tests compared very favorably with those of tests involving sorting of actual objects.

Absolute and Probabilistic F Scales. Each of these two scales consisted of 14 original and 15 reversed F-scale items, rewritten so that items were in either an absolute or probabilistic form. The 30 item original-reversed F scale reported by Messick and Frederiksen (1958), which consisted of 15 original F-scale items and 15 of the Jackson-Messick (1957) reversals, served as the basis for these scales. One dated item was omitted. For each of the 29 items, an absolute and a probabilistic version was written with an attempt to revise only the style of the statements. In some cases it was necessary only to assign an item to the probabilistic or absolute category, while in other instances the insertion of appropriate absolute or probabilistic adjectives was necessary. The following are examples of the two item forms. The alternative qualifiers are placed in parentheses. The first two items are adapted from the original, and the second from the reversed F scale.

A person who has bad manners, habits, and breeding (can never expect) (would probably find it hard) to get along with decent people.
Nowadays (everyone is) (some people are) prying into matters that (must) (should probably) remain personal and private.
We are (certainly bound) (likely) to admire and respect a person if we get to know him well.

Results and Discussion

Original and Reversed F-Scale Items. Correlations between responses to reversed and to original F-scale items within each scale indicated that a response set was operating. The correlation between agreements to original absolutely-stated and agreements to reversed absolutely-stated F-scale items was +.21 ($df = 94$, $p < .05$), and for probabilistically-worded items the correlation was −.04. For the absolute F scale the correlation is significant in the acquiescent direction rather than the content direction, and is consistent with the results of Jackson, Messick, and Solley (1957), who have reported the peculiar property of negative reliability in the F scale. The [illegible] relation between agreements to probabilistically-worded reversed and unreversed F-scale items, while also not high and negative as would [illegible] consistent responses to item content, is significantly lower than that for absolutely-worded items. These results may help to explain the apparent discrepancy between the results of Jackson, Messick, and Solley (1957), and those of other investigators who did not find a correlation between reversed and unreversed F scales significant in the acquiescent direction. While the former generally used extremely-worded reversals, others in most instances did not. Thus, the present results are consistent with those of Christie, Havel, and Seidenberg (1958), who obtained results which tended to be in the direction predictable on the basis of item content when both the content and the extremely-worded form of the F scale were modified. The present results tend to support the position taken by Jackson and Messick (1958), who, in an analysis of stylistic determinants in personality assessment, suggested that the extremely-worded form of the original F-scale items is an important stylistic determinant of acquiescent responses. While these correlations yield preliminary evidence of the presence of acquiescence and other stylistic determinants in the F scale, above and beyond the influences of content, a systematic delineation of the contributions of content and style is possible.

Reliabilities. Table 1 shows the corrected reliabilities of the Object Sorting Test and the split-half reliabilities of the set and content scores

for the two F scales, also corrected by the Spearman-Brown formula. The two equivalent forms of the Object Sorting Test were added to yield a total score for this measure. These combined scores ranged from 6 to 54, with a mean of 24.77 and a standard deviation of 9.40. The means on the Object Sorting Test for men and for women were nearly identical, being 24.37 for men and 25.19 for women.

Table 1. *Corrected Split-Half Reliabilities of Object Sorting Test and the Set and Content Scores for the Two F Scales.*

Measure	N	r_{11}
Object Sorting Test	195	.90
Absolutely-worded F scale	96	
content		.34
set		.47
Probabilistic F scale	99	
content		.32
set		.25

It is interesting to contrast the reliability of the absolute set score of .47 with the reliability of the probabilistic set score of .25. The fact that there is a large difference between these two set scores is further evidence that acquiescence tends to be elicited more consistently from absolutely-stated items than from probabilistically-stated items. Authoritarian content shows approximately equal reliability under the two conditions. These authoritarian content reliabilities are rather low, and indicate considerable heterogeneity of content. It is interesting to compare these results with those of Messick and Frederiksen (1958). While they found a significant reliability for acquiescence (.50), their obtained reliability for authoritarian content was only .14, although it should be noted that with heterogeneous items like the present ones, one may expect different reliabilities when different item splits are used to compute the reliability.

Set and Content Relationships. The correlations between acquiescent set and authoritarian content within each scale are presented in Table 2. These correlations were obtained by cross-correlating the split-half set and content scores within each scale, e.g., even set with odd content, to avoid the effect of possible experimental dependence of the two scores.

These results are evidence that authoritarian content, whether worded absolutely or probabilistically, is unrelated in the present sample to acquiescent set. They are not consistent with the interpre-

tations of Gage, Leavitt, and Stone (1957) and others (Zuckerman, Norton, and Sprague, 1958; Chapman and Bock, 1958) who state that the all positive form of the F scale increases its empirical validity and present data in support of the hypothesis that acquiescence is correlated with authoritarianism. These results support and expand upon the results of Messick and Frederiksen (1958), who found a negligible relationship between acquiescent set and authoritarian content.

Table 2. *Correlations between Set and Content Scores within Each F Scale.*

Scale	*N*	*r*
Absolute F scale	96	
even set, odd content		.003
odd set, even content		.063
Probabilistic F scale	99	
even set, odd content		.053
odd set, even content		.004

Set and Content Scores and Equivalence Range. The correlations between the content and acquiescent set scores of each F scale and wide equivalence range scores (few groups) are shown in Table 3. As predicted, there is a significant relationship between a stylistic preference for extremely-worded sweeping generalizations and lack of differentiation in equivalence range performance. While the magnitude of this correlation might be attenuated due to unreliability of the set measure, it is nevertheless of modest size, suggesting that substantial variance is still unaccounted for.

The nonpredicted relationship between probabilistic authoritarian content and wide equivalence range merits some consideration. Since the correlations between scores on the object sorting test and scores reflecting absolute content and probabilistic set were not significantly different from zero, it would not appear likely that either of these components individually would account for the relationship. Rather, it is possible that the form of the items is serving as a moderator variable (Saunders, 1956) upon the relationship between equivalence range and authoritarian attitudes. That is, the relationship between equivalence range and authoritarian attitudes might be elicited only when the authoritarian attitudes are stated with probabilistic qualification.

It is also to be noted that the direction of the relationship between

probabilistic authoritarian content and the object sorting test is opposite to what would be predicted from at least portions of the theory advanced in the *Authoritarian Personality* (Adorno *et al.*, 1950). Rather than the "authoritarian" showing dichotomous thinking and generally failing to make discriminations, in this sample subjects who agreed with authoritarian statements and who disagreed with non-authoritarian statements, each of which were stated probabilistically, tended to have narrow equivalence ranges. While a definitive theoreti-

Table 3. *Correlations between Equivalence Range Scores and Absolute and Probabilistic F-Scale Set and Content Scores.*

Measure	*N*	*r*
Equivalence range and:		
Absolute Set	96	.18*
Absolute Content	96	−.09
Probabilistic Set	99	.12
Probabilistic Content	99	−.37**

* Significant at the .05 level.
** Significant at the .01 level.
Note: Equivalence Range performance was assessed with the paper and pencil form of the Object Sorting Test. Scores were reflected so that subjects using few groups (broad Equivalence Range) obtained higher scores.

cal interpretation of this correlation would require a replication of the present study with additional variables in order to test alternative hypotheses, the relationship between authoritarian content and narrow equivalence range might be interpretable in terms of the concept of intolerance of ambiguity (Frenkel-Brunswik, 1949). In any event, this finding does emphasize the importance of considering stylistic components of items in relation to their content.

Summary and Conclusions

On the basis of previous research suggesting that item style is an important factor in the F scale, a study was undertaken to investigate what portion of F-scale variance, that attributable to style, or that attributable to content, accounts for its relationship to a personality and cognitive variable. Interest centered upon the response sets of acquiescence and overgeneralization and their hypothesized relationship to the cognitive style of broad equivalence range.

Parallel forms of an Object Sorting Test—a measure of equivalence range—were developed. After all 195 subjects had completed both forms of the Object Sorting Test, they were assigned randomly to be

administered either the absolutely- or the probabilistically-worded F scale, each containing original and reversed authoritarian content.

The results indicated that:

(a) The correlation between agreements to reversed and unreversed absolutely-worded F-scale items was significantly positive and significantly higher than that for probabilistically-worded items, indicating that, for our sample, acquiescence is evoked more strongly and consistently by sweeping generalizations.

(b) The reliability of absolute acquiescent set was found to be higher than that of probabilistic acquiescent set.

(c) The reliability of absolute acquiescent set was somewhat greater than the reliability of authoritarian content, while the reverse was true for the probabilistic scale. The reliabilities of the authoritarian content scores, when separated from the sets to endorse absolutely- and probabilistically-stated items, while greater than zero, were sufficiently low to indicate considerable heterogeneity of item content, arguing against the use of a single content score based on these items to unequivocally reflect authoritarian attitudes (Messick and Jackson, 1958).

(d) Correlations between acquiescent set and content scores on both the absolutely- and the probabilistically-worded F scales indicated a negligible relationship, and failed to support the notion that acquiescence and authoritarian attitudes are related.

(e) Broad equivalence range was significantly related to acquiescent set to absolutely-stated items. Also, narrow equivalence range correlated significantly with authoritarian content stated probabilistically.

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SOCIAL

If any psychologist is not content to study only the external, visible behavior of the individual, if he is overcome with curiosity about the complexities of perception and cognition, he soon finds himself confronted with the problem of social influences on the way in which the individual perceives and conceives the world. Many social psychologists, particularly those who adhere to what is termed "the cognitive approach," hold that processes of perception are at the very core of social behavior; they say not only that the individual behaves in the world as he sees it but also that the way he sees it is open to social determination: to at least some extent, he sees the world not as it is but as others see it.

The following three selections illustrate the course of one major stream of research in the area of social perception. The first selection shows the scientific results of a highly productive combination of problems, ideas, instrumentations and designs. These early experiments excited many investigators, who set about the business of retesting, refining, and extending the original work. Among these investigators was, of course, Muzafer Sherif himself. The second selection here presents the result of work he did, with William Robert Hood, to answer some of the questions arising from his original work.

The third selection has a clear historical connection with the work of Sherif, but it goes further to bring in a new concern. It not only deals with social factors in perception, but it also confronts the general phenomena of conformity behavior. The question here is not only that of understanding factors influencing the way the individual perceives the world but of delineating the factors contributing to the individual's tendency to conform to the ways—the erroneous ways, in this case—of the group.

The reader may wish, at the end of this selection, to set down the kinds of questions that seem naturally to spring from this one experiment, and to describe the kinds of new researches needed to deal with the questions. Anyone who does formulate such unanswerable

questions and who goes on to consider ways in which the questions may be given clear-cut answers is, of course, involving himself intimately in the initial phases of psychological research.

A STUDY OF SOME SOCIAL FACTORS IN PERCEPTION*

Muzafer Sherif

Problem

That individuals may react differently to the same stimulus situations has become a truism in psychology. There are cases in which such internal factors as drive, attitude, affect, or emotional upset play the dominating part in determining the experiences and subsequent behavior. The concern of this study in social psychology is to note some social factors participating in the production of such differential response on the part of individuals.

The Autokinetic Effect

We may now raise the problem: What will an individual do when he is placed in an objectively unstable situation in which all basis of comparison as far as the external field of stimulation is concerned is absent? What will the subject do when external reference points are eliminated? Will he give a hodge-podge of erratic judgments? Or will he establish his own points of reference? Consistent results in any direction under this situation may be taken as the index of a subjectively produced frame of reference.

What will a group of people do in the same unstable situation? Will it give a hodge-podge of judgments? Or will it establish its own frame of reference? Will it produce its own norm so as to perceive the unstable situation in some sort of order? If consistent effects are produced by such social factors as suggestion, and if the group establishes a standard or a reference point peculiar to itself, then we may

* From *Archives of Psychology*, Vol. 27, No. 187, 1935, pp. 5, 17–19, 21, 22, 27–34, 41.

say that we have at least the rudiments of the formation of a norm by a group.

With these considerations clearly in mind, our first task has been to find situations that can be structured this or that way by a definite subjective set. From among other possible experimental situations, we have preferred to use autokinetic movement and affectively neutral passages of prose. They meet our requirements. Autokinetic movement affords an especially good opportunity to test out the questions raised in the last paragraphs. In a dark room, when there is no objective basis of comparison, a single small light seems to move, and may seem to move in any direction. If you present the point of light repeatedly to a subject, he may see the light appearing at different places in the room each time—especially if the subject does not know the distance between himself and the light. The autokinetic effect can be obtained very easily. In a completely dark room a single point of light cannot be localized definitely at any place, because there is nothing in reference to which you can locate it. The effect appears even when the person looking at the light knows perfectly well that the light is not moving at all.

Apparatus

The experiments were carried on in a sound- and light-proof room. The stimulus light was mounted on a table, 85 cm. from the floor at one end of the experimental room. The subjects were seated at the opposite end of the room, 5 meters from the stimulus light.

In order that the observers might get no idea about the source of light and the experimental set-up, there was always a large four-section screen between the observer and the light whenever the room was illuminated. The screen was pushed aside just after the room was completely darkened. Observers never saw the set-up around the stimulus light. This precaution was taken so as not to give any idea about a possible objective range for distance.

The essential parts of the apparatus were the stimulus light and the timing apparatus.

The point of light (the stimulus light) was exposed through a tiny hole, 1 mm. in diameter, in one end of a tight metal box 7.5 cm. in diameter and 25 cm. long. The source of light was a small radio dial bulb burning at approximately normal brilliance on 2.5 volts supplied by a small transformer. Two thicknesses of tissue paper located 20 cm. from the bulb served to diffuse the light. A manually operated photographic shutter stood on the table immediately in front of the

point of light and was operated by the experimenter by means of a long cable release.

The subject was instructed to press his reaction key as soon as he had seen the (autokinetic) movement (as will be noted in the description of the procedure later). This set the disk of the timing device in motion by releasing a magnetic catch. This disk was driven by a Telechron synchronous motor through a clutch. Normally it was held stationary and was arranged to make one complete revolution when released. An adjustable pin on the edge of the disk struck a small lever (giving a soft click) at a predetermined time (i.e., 2 seconds) following the reaction of the subject. The experimenter closed the shutter as soon as the timer had clicked.

In case no movement was seen within 30 seconds following the exposure of the light, the experimenter closed the shutter, and recorded the "distance" as zero. The 30 seconds' duration was determined by a stop-watch with luminous dial lying on the table in front of the experimenter.

In the group experiments the apparatus was the same, with the following necessary additions. In place of the single reaction key, three keys were mounted on the table 30 cm. apart. The connections were so arranged that each key closed the circuit to the timing apparatus; thus the pressing of any one of the reaction keys would release the disk, so that the light disappeared 2 seconds later. The chairs for the subjects were set behind the table close to each other. On successive group sessions, the subjects took the same chairs.

To identify the subjects as they gave their individual judgments in complete darkness, a signal system was necessary. This consisted of push-buttons mounted beside each reaction key and connected with three colored signal lights (yellow, red, green, respectively), so concealed from the vision of the subjects by a partition as to be visible only to the experimenter. These signal lights were exceedingly dim, and of course made nothing in the room visible to the subjects while the experiment was going on.

Because of the fact that the autokinetic effect is produced more readily if the distance between the subject and the point of light is not known, the comparatively long distance of 5 meters was used. Also because of the fact that the smaller the light the more quickly the "illusion" of movement is produced, a tiny hole of 1 mm. was chosen. These conditions are important, especially for group experiments, because if in different groups one member continually reports zero movement, while another presses the key to indicate the experience of movement, the stimulus-field is *not unstable enough* and

hence not differentiating between subjective states of individuals in the group. The inspection of results shows that these difficulties were avoided in the experimental set-up.

The Group as a Factor in Perception

The facts in the [previous] experiments led to the conclusion that: (1) every observer establishes a range of his own; (2) the judgments within that range are fairly normally distributed around a median value (norm). We started with the individual, to find out the individual reactions first. With the group experiments we extend our method to an important field of social psychology. The question becomes: What will a group do when confronting such an unstable situation? Will different individuals establish *their own* ranges and the norms within those ranges, or will the group establish a range (scale) of its own, and produce a norm (a median value) peculiar to itself? This involves one of the most debated questions in social psychology.

A further question is this: How much convergence of ranges and medians (norms) will there be (a) when the individual in one session faces the situation alone and then is brought into the group situation; (b) when he faces the situation in the group first and then alone?

There were 8 groups of 2 subjects and 8 groups of 3 subjects. Four groups started with the individual situation (one session for each individual), and then functioned as groups. Four groups started as groups (3 sessions—all subjects of the group present in all 3), and were then broken up and studied in the individual situation. These arrangements are shown below. As before, 100 judgments were taken from each subject in each session.

Starting with the Individual Situation:

Session	I		II	III	IV
		1			
	Individual	2	Group	Group	Group
		3			

Starting with the Group Situation:

Session	I	II	III	IV	
					1
	Group	Group	Group	Individual	2
					3

The general plan above holds true for the groups of 2 and 3 subjects.

The experimental setting in general is the same as in previous ex-

periments. The exposure time (after the key is pressed) is the same. The head-rest was, however, not used, as the previous experiment showed us that it does not make much difference. As the subjects were new to the experimenter, he could not tell from the voice who was giving a judgment. Each subject pressed a push-button at the same time as he gave his judgment aloud. This push-button operated a signal light (yellow, red, or green as the case might be), which could be seen only by the experimenter, as it was separated by a partition from the vision of the subjects. It must be repeated that the colored light was very dim; it did not have intensity enough to make anything in the room visible.

The instruction sheet ran as follows:

When the room is completely dark, I shall give you the signal READY, and then show you a point of light. After a short time the light will start to move. As soon as you see it move, press the key. (Press it the moment you see the light move. Don't wait for the other persons.) A few seconds later the light will disappear. Then tell me the distance it moved. When you give your estimate, press the push-button. Try to make your estimates as accurate as possible.

This also described the general procedure. After the subjects read the instruction sheets they were told that they could give their judgments in any order and they could change the order from time to time. In accordance with this, the subjects changed the order in which they gave their judgments during the course of the experiment. Each of the 100 judgments obtained from each subject in each session was written by the experimenter on a different sheet of a small pad and then torn off. As the subjects in the group were unknown to the experimenter and the experimenter could not recognize their voices, each subject's judgments were written down on a pad of a different color, corresponding to the color of the glow produced by the pressing of the push-button by each subject.

As will be noticed in the instructions, the subjects were left free as to the order in which they would give their judgments. This was done on purpose. The task set in the present study is to find what a group, *consisting of people who have not established a relationship to each other, affective or otherwise,* will do when they face such a novel field of stimulation. They were told at the start to give their judgments in random order, and to change the order in which they gave their judgments once in a while. Whether the judgments of the per-

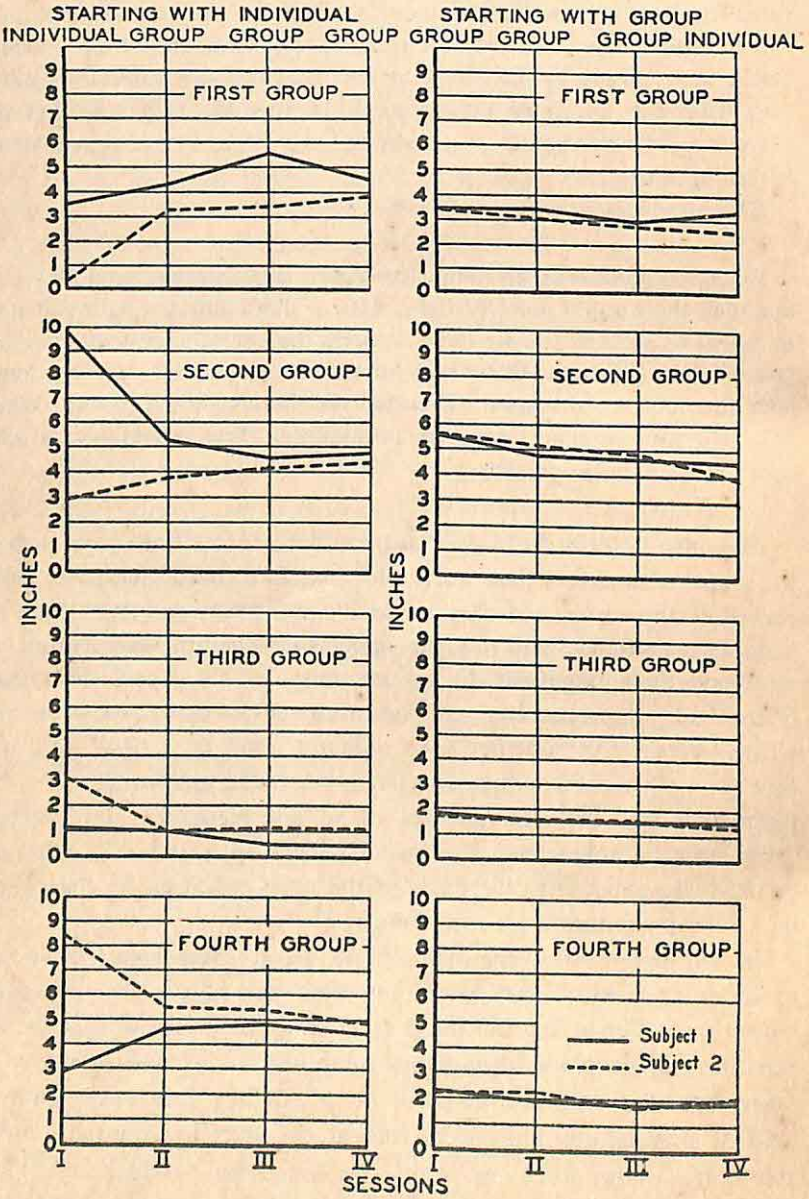

Figure 1. *Medians in groups of two subjects.*

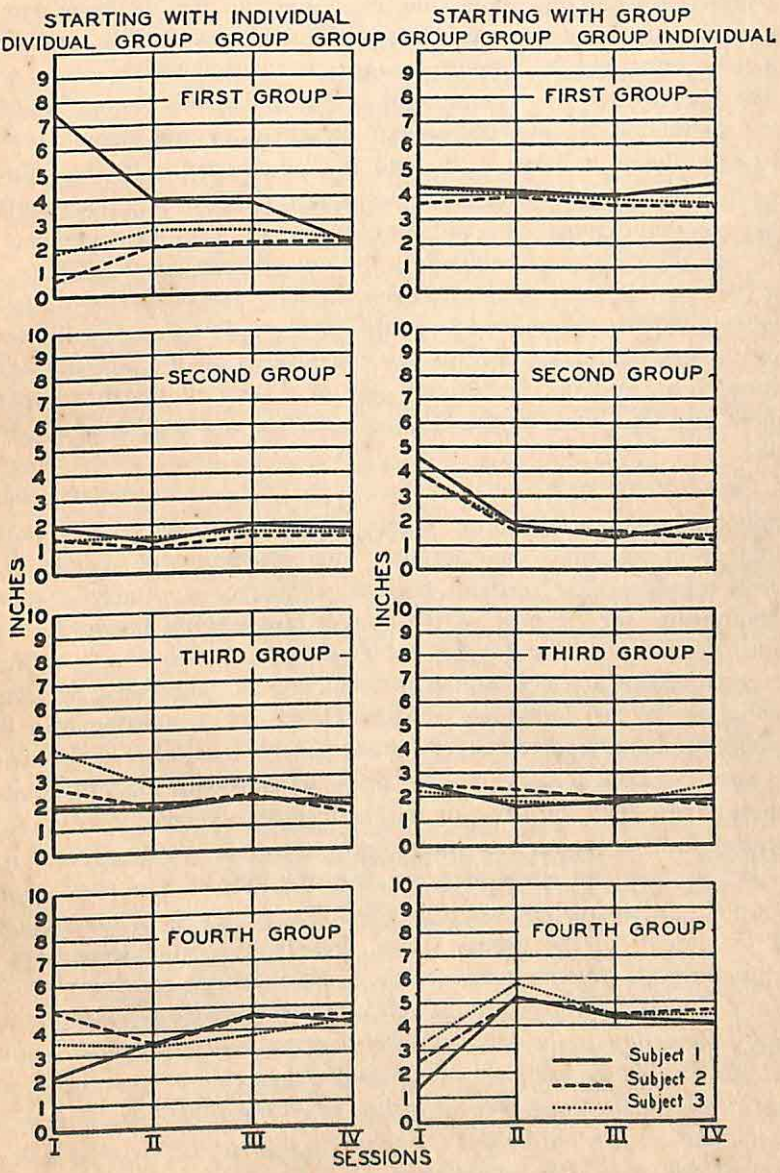

Figure 2. *Medians in groups of three subjects.*

son who utters his judgments first have more influence than the others becomes a study in leadership which is a further interesting study.

In order to find out whether the subjects became conscious of the range and norm (median value) they established subjectively, the following questions were added:

Between what maximum and minimum did the distances vary? What was the most frequent distance the light moved? The similarity of these introspectively reported *ranges* and *norms* to the *ranges* and *norms* revealed by the computation of 100 judgments, would indicate how conscious the subjects became of the range and median established in the group. Also at the end of all the experiments the following question was added to the introspection blank to find out whether they were conscious of the influence of the group on their judgments: Do you think you were influenced in your estimate by the judgments of the other persons in the experiment? The question: How did the light move? was eliminated from the introspection sheets, because if the subjects' attention were to be concentrated on the direction they would soon find out the discrepancy of the directions they experienced and thus come to the conclusion that it was an "illusion" after all.

Certain facts stand out in these graphs. When subjects start with individual sessions the median values which they establish individually differ from each other considerably. When on successive sessions they work together their medians tend to converge—a "funnel-shaped" relationship, the opening of the funnel representing individual sessions. On the other hand, when subjects start in group situations there is convergence at once, which is maintained in successive sessions, including the last individual session. Groups of 2, starting with the group situation, tend to keep the same general level of median values in successive sessions. In groups of 3, starting with the group situations, there may be a rise or fall, as well as a keeping to the same general level in the median values, as seen in cases of the second and fourth groups. But when there is a rise the subjects rise as a whole, and they fall as a whole when they fall. The closeness of the medians of individuals in the group, which suggests the establishment of a common norm for the group in the cases of groups starting with the group situation, is *a very important fact that we wish to stress. Especially important is the fact that the divergence of the median values* established by the subjects in the individual session *after* the group sessions is small. *Compared with this, when the subject starts with an individual session and then is brought into a group the convergence of the medians* (see the funnel-shaped relationship) *is not so close—*

suggesting that if an individual faces a stimulus situation and patterns it in *his own way* first, the group influence is not so dominating as when he faces the situation in the group first.

Also in groups starting with the group situation the differences between the medians of the last (Session III) group session and the individual session (Session IV) of each individual (designated as Self-D: self-difference) are small and statistically unreliable in most cases. This is, we repeat, an important point for social psychology, suggesting that once an individual faces a stimulus situation in the group situation for the first time and reacts to it with the norm of the group, *there is a tendency to continue to react to the same situation with the same norm established in the group,* even when the subject is no longer in the group situation. No attempt has been made to make a careful analysis of the differences between the groups of 2 and 3 subjects. These two kinds of groups give essentially the same results.

We may summarize these results in a few words: When individuals face this new and unstable situation *first* individually and *then* in a group, each establishes a range and a norm (standard) within that range; the range and the norms tend to converge when the subjects come into a group situation. But the convergence is not as close as when they start with the group situation first.

When individuals face this new, unstable situation as members of a group for the first time, a range (a scale) and a norm (standard) within that range are established which are peculiar to the group, and *afterwards* when they face the same situation alone they stick to the range and norm established in the group.

After Sherif's original and inventive work on perceptual norms, research on the social factors in perception went off in many directions. One can see how the psychologist can easily become interested in varying the dimensions of the perceived object to discover what effect such variation might have on social perception. Or the experimenter might wish to work with systematic changes in the nature of the social situation in which perception occurs or to vary the personal attributes of the perceiver in order to learn about these additional factors in social perception.

A good deal of research in this general area has involved Sherif's autokinetic phenomenon. And a good deal of it has involved Sherif himself also, most frequently working with a collaborator as in the following article, of which William Robert Hood is the principal author.

VERBAL REPORT AND JUDGMENT OF AN UNSTRUCTURED STIMULUS*

William Robert Hood and Muzafer Sherif

Introduction and Problem

One of the established experimental methods in social psychology is measurement of changes in judgment accompanying variations in social influence. Procedures have been applied to judgment of a variety of stimulus dimensions (e.g., apparent movement, warmth, length, numerosity, affectivity) and have utilized different social influences (e.g., judgments of other persons in various prestige and status relationships to *S*, or with membership in social aggregates and groups).

During the last decade, interest in psychological processes involved in behavioral changes and a healthy concern with the validity of laboratory results have led to certain pertinent questions. Does the individual who changes his verbal reports with the introduction of a social influence actually *see* the stimulus situation differently, or is he simply reporting in a way calculated to avoid disapproval and to appear agreeable? Is there a discrepancy between his perception or judgment of the situation and his verbal report to *E?* That discrepancies do occur is shown by studies in which stimuli to be judged clearly differ and *S* faces a number of other individuals (planted *S*s) stating, in effect, that they do not differ (Asch, 1952, pp. 451–483). Here the typical finding is that a minority of the *S*s agree with the planted *S*s' judgments and that most of these later say that they did not in fact "see" the situation as they reported it.

Festinger (1953) suggested a behavioral criterion for evaluating whether or not a discrepancy between *S*'s experience and his verbal report occurs, viz., determining whether or not convergence to an experimentally introduced standard continues following its removal. On the basis of this criterion, experimental evidence of a discrepancy is lacking when the stimuli are unstructured in the dimension judged, i.e., when stimulus determinants are such that alternative perceptual organizations are feasible. The original studies on judgments of extent of autokinetic movement in interaction situations (Sherif, 1935) revealed no discrepancy between judgment and verbal report by this

* From *Journal of Psychology*, Vol. 54, 1962, pp. 121–130. By permission.

criterion. After judging extent of movement with others, *S*s subsequently adhered to the range and norm developed in the interaction situation when making judgments alone on a different day. More recently, the maintenance of judgments formed in social situations was reported in individual sessions held after intervals of 28 days (Bovard, 1948) and a year (Rohrer *et al.*, 1954).

If lack of correspondence between judgment and verbal report were the general finding in experiments on social influence, it might be concluded that such experiments reveal merely responses expected of agreeable, socialized individuals to direct social pressures or demands from others in the situation. If so, findings obtained by this laboratory method would not be pertinent to the more lasting changes produced by social influences in actual life. Thus the correspondence or lack of correspondence between judgment and verbal report is a crucial problem in social psychology. The problem may be stated more specifically: Under what conditions is a discrepancy found or not found? What is the nature of the social influence in these conditions and how is it perceived by *S*?

As a first step, it may be noted that discrepancies are sometimes reported in situations where the stimulus dimension is definitely graded in clear alternatives (structured situations). Judgments of other individuals contrary to perceived stimulus differences contribute to *S*'s perception of "social pressures" to conform. At an opposite pole, when facing a situation whose stimulus determinants permit many alternatives, *S* is influenced by an experimentally introduced standard and may be unaware of the influence. In the latter situation, it may be misleading to speak of "social pressures." The problem of the present experiment concerns this latter pole, which may be conceived as an end segment in the range of gradations of structure in social influence situations.

The experimental situation was defined by the following guides: (*a*) The stimulus dimension judged permits varied alternative modes of experience and behavior. (The autokinetic situation was chosen.) (*b*) Procedures eliminate as much as possible any suspicion that the experiment has anything to do with any kind of social influence. (*c*) Immediate social pressures, in the form of the presence of another person making judgments or the sound of his voice, are eliminated. The social influence is perceived by *S* as coincidental to his presence in the situation and is absent when he renders judgments. (*d*) *S* does not "commit" himself in the presence of a planted *S* and is encouraged to judge as he sees fit. (*e*) Extensive data are collected on *S*'s experiences in the experiment as reported after he makes judgments. Such

data are a basis, in fact the only available basis, for inferring his experience at the time.

The hypotheses were that under the conditions stated above: (*a*) *S*'s judgments would converge toward those of a planted *S* to which he was exposed prior to rendering judgment, and (*b*) there would be no discrepancy between experience of the stimulus and verbally reported judgments.

Method

Ss were told that the purpose of the experiment was the design of tests of visual abilities under low illumination. *E* identified himself as a graduate student employed to work on a research contract and avoided any mention of psychology. The experimental darkroom was located in an Army Reserve building. Before entering the darkroom, *E* explained to *S*:

We've found it takes the average person's eyes about three to 15 minutes to adjust to the dark enough to see the light. I left the observer who started before you in the darkroom while I came to get you so that we could save that 15 minutes. He has about that many estimates to make in order to finish his series. I'll bet he's asleep by now. You can just sit in the darkroom and let your eyes adapt while he finishes, and then you and I will be ready to go to work.

The room was dark when *S* entered and he never saw the planted *S*. *E* asked the planted *S* if he had taken a nap. The planted *S* answered: "No, but this would be a good place to take one. It sure is dark in here." Except for his judgments, he said nothing else in the naive *S*'s presence. The naive *S* was led to a chair at one side of a table where the planted *S* was seated, facing the light source. Then he was told:

I'll tell you what we are doing before we start again so that it won't be quite so boring—just sitting there. The observer who is working now has a box in front of him with a button on it. His job is to watch for the light to come on down at the other end of the room—off to your right. I will say "ready" about three seconds before the light appears. He watches the light, and as soon as it starts to move, he punches the button. After a few seconds the light goes off, and then he tells me how far it moved—just the distance it moved through space; the direction doesn't matter.

The planted *S* then gave a series of 18 judgments, spoken in a clear voice but with a degree of assurance planned to approximate that conveyed by naive *S*s in pretests. For half of the *S*s, these 18 judgments were distributed between 1″ and 5″ with a mode of 3″. For the other half of the *S*s, the 18 judgments were distributed between 6″ and 10″ with a mode of 8″. When the series of 18 judgments was completed, *S* was asked to wait in the darkroom (two minutes), while the other observer was paid. Then *S* moved behind the table and the instructions for judging movement were repeated. *E* avoided any comment on the planted *S*'s judgments. A few *S*s expressed disagreement with them after the "plant" left, and they were told: "You call them the way *you* see them."

Following four trial judgments, each *S* gave a series of 50 judgments at one minute intervals. Then *S* was taken to where a questionnaire was administered.

Apparatus

The autokinetic apparatus exposed a pinpoint of light automatically through a circular hole 1 mm. in diameter (see Sherif and Harvey, 1952, for specifications). The brilliance of the light was reduced approximately to half, and exposure time was set at two seconds. Pretests of these adjustments resulted in relatively small and consistent judgments of extent of apparent movement. The darkroom was 15′ × 30′ with *S*-to-light distance of 20′.

The questionnaire administered following the judgment included several linear scales to secure estimates of confidence, influence of the planted *S* and extent of agreement with him, as well as open-ended items concerning purpose and possible utility of the experiment, role of the planted *S*, descriptions and estimates of apparent movement.

Subjects

*S*s were 24 male college students paid as "observers" and unfamiliar with the autokinetic phenomenon. Random assignment to the two experimental conditions was restricted only by matching for age. Pretest data indicated differences in response to the experimental conditions related to age, which factor probably summarizes several related characteristics of college students, e.g., classification, academic success, ease in an experimental situation. In each condition, five *S*s were between 17 and 19 years old, two *S*s were 20 years, and five

Ss between 21 and 27 years. The planted *S* was the same person in each session (age, 20 years).

Results

Data bearing on three general questions are pertinent to the hypotheses:

1. Do *S*'s judgments conform to the mode and range of the planted *S*'s judgments previously overheard?
2. Do *S*'s experiences as reported immediately after the experimental session agree with his verbally reported judgments?
3. Is *S* aware of any influence from the prior judgments of the planted *S*?

Table 1 gives the median judgments by *Ss* in each condition. The median of all judgments for the sample exposed to the 1–5″ range is 3.98″, and that of the sample exposed to the 6–10″ range is 6.79″.

Table 1. *Median Judgments by Ss Initially Exposed to Different Ranges.*

Condition: 1–5″ Range Inches	Condition: 6–10″ Range Inches
2.6	3.1
2.7	4.3
3.2	4.9
3.4	6.5
3.5	6.6
3.8	6.8
3.9	6.8
4.1	7.5
4.3	7.6
4.9	7.7
5.1	8.5
5.7	11.5

Mann-Whitney $U = 16$.
$p < .001$ (one-tailed test).

The differences between the medians for the two conditions were tested by the Mann-Whitney statistic, *U*, and were significant ($p < .001$).

Figure 1 shows the proportion of *Ss*' judgments which were 5″ or less and 6″ or more. *Ss* exposed to the 1–5″ range placed the bulk of their judgments below 5″ and *Ss* exposed to the 6–10″ range concentrated their judgments above 6″. In the 1–5″ condition, 81.1 per cent of the judgments fell between 1–5″ and the range of judgments

was 10″. In the second condition, 70.5 per cent of judgments were 6″ or greater, and the range was 24″.

Responses to questionnaire items concerning the purpose of the experiment were identical or entirely consistent with the instructions for all but one *S*. The latter, a bright young physics student, had already observed to *E* that overhearing another person might affect

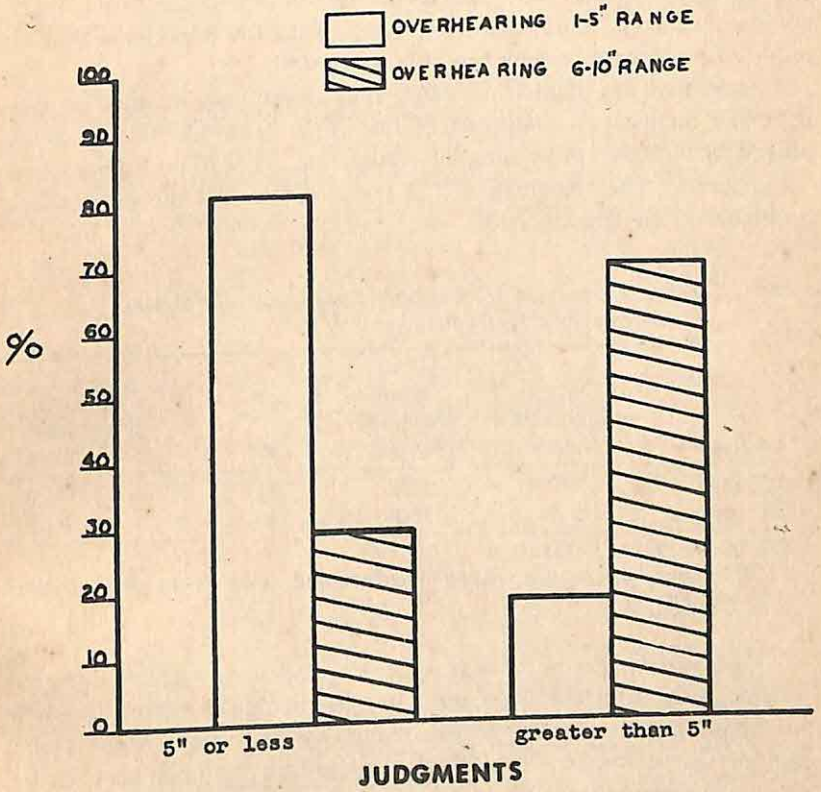

Figure 1. *Proportions of judgments 5″ or less and greater than 5″ for two conditions.*

one's judgments. However, this *S* estimated that he himself was influenced by the plant in only about 25 per cent of his judgments. Actually 74 per cent of his judgments fell within the plant's range. Explanations of the procedures by other *S*s were in terms of tests for "night flying," "night driving" and the like. All *S*s accepted *E*'s explanation of the plant's presence.

In inferring correspondence between *S*s' verbal reports and experiences of apparent movement, a crucial comparison is between medians

of the obtained judgments and *Ss*' responses to the questionnaire item: "How far did the light seem to move usually?" The summary in Table 2 reveals small differences between the two. The significance of differences between each *S*'s median judgment and his subsequent report of "usual" extent of perceived movement was tested by the Wilcoxon Matched-Pairs Signed-Ranks Test. The resulting *T*s of 21 and 26 for *Ss* in the 1–5″ and 6–10″ conditions, respectively, were not significant ($p > .05$, two-tailed test). Thus the hypothesis that *Ss* reported movement as they saw it is supported.

Ss accepted the planted *S*, whom they never saw, as another student like themselves. Only one of the 24 *Ss* believed that the plant judged accurately, while another stated that he was uncertain as to his accuracy. The remaining 22 *Ss* stated either that the plant overestimated or underestimated.

Table 2. *Medians of Obtained Judgments and Extent of Movement Usually Perceived by* Ss.

Condition	Obtained judgments Inches	Usual extent perceived Inches	T*	Range of differences** Inches
1–5″ range	3.98	3.88	21	−1.2–+3.3
6–10″ range	6.79	7.00	26	−1.5–+1.3

* Wilcoxon test: $p > .05$.

** Difference between *S*'s median judgment and usual extent of movement he reported having perceived.

Asked to estimate on a linear scale the proportion of his judgments influenced by the plant, only one *S* overestimated the extent to which his judgments actually fell within the prescribed range of the plant. The median difference between the proportion of judgments falling within the prescribed 1–5″ range and the proportion which *Ss* in that condition estimated to be influenced was 64 per cent (range: 7–100). The median discrepancy for the 6–10″ condition was 57.5 per cent (range: 16–80). Since all but one *S* underestimated the extent of agreement between his judgments and those of the plant, the direction of differences is clearly significant ($p < .005$, two-tailed Wilcoxon Matched-Pairs Signed-Ranks Test). The size of the discrepancy between the proportions of judgments actually falling within the prescribed ranges and the proportions *Ss* thought were influenced was significant for both conditions ($p = .005$, two-tailed Walsh test).

The distributions of responses on a 5-category scale concerning

amount of agreement between plant's judgments and *S*'s own judgments were practically identical for the two conditions. One *S* in each condition rated his agreement with the plant between "Agreed most of the time" and "Much agreement." Of the remaining 22 *S*s, half checked "Agreed some of the time" and half checked "Positively no agreement" or "Little agreement."

Discussion

Analysis of the results has indicated that the prescribed range of a planted *S*, overheard briefly prior to rendering judgments, did influence the norm and range adopted by *S* in this situation. The purpose of the experiment and the role of the plant were accepted as genuine. There was no significant discrepancy between *S*'s reported judgments and his experience of extent of movement. On the whole, *S*s were not aware of the extent to which their judgments coincided with the plant's. Thus we may consider the main hypotheses supported. In a situation lacking clearcut determinants in the stimulus dimension judged, the spoken judgments of another person serve to anchor experience of the individual, and this experience is accurately reflected in his verbal reports while rendering judgment.

While much experimentation on social influence has quite properly focussed on interaction situations, it is apparent that even in the absence of interaction between individuals or the immediate sound of another's voice, the judgments of another person overheard previously may exert a categorizing effect, delimiting the scope of perceived alternatives and affecting the modal value. This conclusion is consistent with the experimental findings concerning the categorizing effect of linguistic concepts (Gibson, 1929). In such situations, it would seem misleading to conceptualize the influence process in terms of arbitrary "social pressures," particularly when *S* is unaware of being influenced.

The situation in this study represents near-minimal social influence whose strengthening by the ascription of authority or prestige should lead to even more striking differences in judgments by *S*s overhearing different prescribed ranges.

The use of a minimal social influence in the present experiment permits analysis of some of the stimulus determinants operating even in so unstructured a situation as the autokinetic set-up. Under the usual conditions of autokinetic experiments as to size of room, distance from light, length of exposure and brilliance of light, *S*s ordinarily

center judgments around a mode of 3–6″, the individual who exceeds a mode of 8–10″ being exceptional. In comparison, judgments made in a large, empty auditorium are greater in both mode and range (Sherif and Harvey, 1952). In the present experiment, the brilliance of the light was reduced, which resulted in pretest judgments of small movement within a narrow range.

Certain differences in the responses by *Ss* exposed to the 1–5″ range and the 6–10″ range are worth noting. In a situation more conducive to the perception of small movements, the introduction of the 6–10″ range not only set a level considerably higher than "normal" for these viewing conditions, but also resulted in a range (24″) unusually large for these conditions. In the autokinetic situation or other situations conducive to various alternative modes of perceptual patterning, possible conflict among alternatives can be resolved rather easily. In the present case, *Ss* in the 6–10″ condition estimated distance to the light as farther (median: 19′) than *Ss* in the 1–5″ condition (median: 14′). This estimate is congruent with their larger median judgment of perceived movement (viz., 6.79″, as compared to 3.98″). The limits imposed by stimulus determinants are strikingly apparent when the social influence diverges from them increasingly. Whittaker (1958) has shown that when the social influence diverges widely from the *S*'s mode, he ignores the social standard completely.

Summary

The validity of experimental methods for studying lasting changes in judgment as a function of social influence requires that verbal reports of judgment reflect *S*'s experience of the stimulus dimension. This paper discusses factors determining whether or not a discrepancy between verbal reports and *S*'s experience will arise. An experiment is presented in which the stimulus dimension judged (extent of autokinetic movement) permitted alternative modes of experience and report. Procedures were designed so that *Ss* would not suspect that a study of social influence was in progress. *S* did not "commit" himself in the presence of another person, and immediate "social pressures" were eliminated. *S* was exposed, as though accidentally, to the prescribed judgments of a planted *S* prior to rendering judgment.

In this experimental situation, judgments of *Ss* exposed initially to different prescribed ranges did differ significantly in the predicted directions. There was no significant difference between verbal reports in rendering judgment and experiences of movement, as inferred from other behavioral data. On the whole, *Ss* accepted *E*'s

account of the purpose and procedures as genuine, and were unaware of the extent to which their judgments had been influenced.

This situation is contrasted with those at an opposite pole, in which determinants in the physical stimulus situation are predominant and discrepant social standards are introduced.

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When an individual "sees" a phenomenon the way his fellows see it, we have an example of the way in which social factors operate in perceptual processes. We also have an example, if we adopt another angle of regard, of the pressure to conform that a group can exert on an individual. In the preceding study, Sherif and Hood moved toward an interest in social influence in an unstructured stimulus situation. Here, Solomon E. Asch goes further away from a primary focus on social perception, and designs his research in terms of independence and conformity. They remain, however, independence and conformity with respect to perceptual processes.

STUDIES OF INDEPENDENCE AND CONFORMITY: A MINORITY OF ONE AGAINST A UNANIMOUS MAJORITY*

Solomon E. Asch

The investigations described in this series are concerned with the conditions of independence and lack of independence in the face of group pressure.

Of the many diverse forms of social independence and submission, we have selected one in particular for study. By means of a procedure shortly to be described we generated a disagreement between a single person and a group concerning a simple and clear matter of *fact* in the immediate environment. Further, the group that disagreed with the individual judged the facts in question *wrongly,* while the individual could not but judge the facts correctly. Finally, the judgments were stated *publicly;* the single individual was always called upon to announce his judgment just after a group of equals had stated a wrong judgment. In short, we are concerned with public independence and lack of independence in the face of arbitrary group opposition. The aim was to observe the impact of these conditions when the question at issue was that of resisting or bowing to a prevailing group direction. More generally, the object of the present investigation and of those to follow is to give an account of the facts observed and to state some of the conditions responsible for independence and failure of independence.

Plan of the Investigation

A group of seven to nine individuals was gathered in a classroom to take part in what appeared to be a simple experiment in visual discrimination. They were instructed to match the length of a given line—the standard—with one of three other lines. One of the three comparison lines was equal to the standard; the other two lengths differed from the standard (and from each other) by considerable amounts. The entire task consisted of 18 such comparisons. The individuals were instructed to announce their judgments publicly in the order in which they were seated. The comparison lines were num-

* From *Psychological Monographs,* Vol. 70, No. 416, 1956, pp. 1–12. By permission.

bered 1, 2, and 3 from left to right and permitted the subjects to state their judgments by calling out the appropriate number.

The following condition was the vital feature of the experimental situation. All but one of the group had met previously with the experimenter and were instructed to respond on certain trials with wrong and unanimous judgments. Into this group we introduced a single individual who was not aware of this prearrangement. This individual heard the majority respond unanimously from time to time with estimates that clearly contradicted his own observation, and that departed from the true value by amounts ranging from ¾ to 1¾ inches. That the differences were clearly distinguishable is shown by the fact that under control conditions, namely, with subjects judging individually, the estimates showed an accuracy of over 99 per cent.

This, then, was the essential structure of the experimental situation. By means of an artificial procedure we introduced a sharp disagreement between one person and an entire group when the task was that of judging a clear perceptual relation. We placed a single individual, whom we will call the critical subject, in the position of a *minority of one* against a *wrong and unanimous* majority. Perhaps for the first time this person found a massed majority contradicting the clear evidence of his senses.

The Instructed Majority. The instructed majority consisted of male college students who had volunteered for the purpose. During a training session the general purport of the experiment and their role in it was explained. The majority was instructed to announce the judgments clearly and firmly, but not to take issue with the critical subject. They were also advised not to look directly at him and to refrain from feigning surprise at his answers. The majority was therefore far from militant or aggressive; rather it tended to the side of impersonality.

The experimenter opened the proceedings by placing in the front of the room the first set of cards and then reading the following instructions:

> This is a task involving the discrimination of lengths of lines. Before you is a pair of cards. On the left is a card with one line; the card at the right has three lines differing in length; they are numbered 1, 2, and 3, in order. One of the three lines at the right is equal to the standard line at the left—you will decide in each case which is the equal line. You will state your judgment in terms of the number of the line. There will be 18 such comparisons in all.

As the number of comparisons is few and the group small, I will call upon each of you in turn to announce your judgments, which I shall record here on a prepared form. Please be as accurate as possible. Suppose you give me your estimates in order, starting at the right in the first row, proceeding to the left, and then going to the second row.

By reading the instructions to the assembled group the experimenter conveyed the impression that all were equally new to the situation. To strengthen this impression some members of the majority asked questions intended to "clarify" the instructions. They inquired whether there would always be a comparison line equal to the standard and asked for a repetition of the way in which the responses were to be announced. When these questions were answered, the experimenter proceeded to call for the judgments on the first trial. The first member of the majority was provided with the answers on a small card which he could consult inconspicuously; the others followed his lead on each trial. The experimental session lasted about 20 minutes.

As mentioned earlier, the majority consisted of seven to nine persons. It was felt that this number was neither too large nor too small to produce a credible and serious sense of group contradiction. In a few instances the majority had only five or six members; this difference, we will show subsequently, did not affect the outcome. The members were not selected with any criteria in mind other than general reliability and absence of unusual features (such as visibly poor eyesight). While the composition of the group was fairly constant, some did drop out and had to be replaced, a circumstance that seemed to have no discernible effect on the results.

Both the majority and the critical subjects were asked to hold the experiment in confidence. This was a necessary condition for continued work in the same institution, and one that was achieved with a signal degree of success.

The Critical Subjects. The subjects were all male, white college students, ranging in age from 17 to 25; the mean age was 20. For certain purposes a large number of critical subjects was required for the present experiment.

The critical subjects and their majority were always drawn from the same population. In short, we investigated the effect of a group of peers upon a minority of one. However, the degree of acquaintance with the majority was uncontrolled; it varied markedly from insti-

tution to institution, and also from person to person. In the first group the members of the majority were often acquaintances, and at times, friends of the critical subjects. This was far less frequently the case in the other groups.

The Materials. As stated earlier, the task consisted of the comparison of a standard line with three other lines, one of which was equal in length to the standard. The lengths to be compared appeared as black vertical lines on white cards that were placed on the ledge of the blackboard in front of the room. As the instructions indicated, the comparison lines were numbered 1, 2, and 3 from left to right, and the members stated their judgments by calling out one of the numbers.

The cards remained in position until all had announced their estimates; they were then removed and replaced by a new pair of cards carrying a new set of standard and comparison lines.

Structure of the Task. There was a total of 18 comparisons. The errors of the majority, which varied from ¾ inch to 1¾ inches, were smallest on the early trials, generally increasing as the experiment progressed. We will now describe the task in detail.

Repetition of the series. We note first that the series consisted of nine comparisons which were shown twice without a pause. We may therefore speak of a first and second half of the series, the latter following the first without a break. This duplication will permit us to follow the development of the experimental effect in the course of time. The critical subjects were not aware that the series was being repeated, although occasionally some remarked about the similarity of one or another trial.

Neutral trials. It seemed advisable to include a number of trials to which the majority responded correctly; these we will call the neutral trials. We hoped that their inclusion would lend a quality of trustworthiness to the majority. For this reason we also decided to make the two opening trials neutral. The third neutral trial was interspersed in the fifth position.

Critical trials. The critical trials were those to which the majority responded incorrectly. There were twelve such trials, six in each half of the series. Actually the critical trials consisted of a repetition of three basic comparisons.

Moderate and extreme critical trials. For a reason that will soon become clear we introduced a systematic and constant difference on each trial between the two unequal comparison lines. In each case

one of the comparison lines deviated from the standard more than the other, and this difference was in all cases ½ inch.

Each of the three basic comparisons was shown twice within each half of the series, but the majority responded differently to them on the two occasions. On its first appearance the majority matched the standard with the comparison line that deviated least from it; when the same lines reappeared, the majority matched the standard with the comparison line that deviated most from it. For example, Comparison I which appeared on Trials 1 and 3 called for the matching of a 3-inch standard with one of the following comparison lines: 3¾ inches, 4¼ inches, 3 inches. On Trial 1 the majority chose 3¾ inches as equivalent to the standard, but on Trial 3 they chose the 4¼ inches line. We will call the former a moderate and the latter an extreme error; and we will refer to the corresponding trials as moderate and extreme. This property of the stimulus relations will permit us to follow the effects of moderate and extreme majority errors on otherwise identical comparisons.

The lengths of the standards varied considerably, being 3 inches, 5 inches, and 8 inches, respectively. The errors of the majority contained both over- and under-estimations. The pair of unequal comparison lines varied in their relation to the standard: both were longer, both were shorter, and one was longer and the other shorter than the standard. On successive trials the correct comparison line appeared in each of the three positions.

To summarize: The experiment opened with two neutral trials to which the majority responded correctly. On the third trial, the majority deviated from the correct value by ¾ inch; on the fourth trial, the error increased to 1 inch. Another neutral trial occurred in the fifth position. The next four trials were critical, the majority error increasing progressively to 1¾ inches. As described above, the majority responded with moderate and extreme errors. The entire set of the first nine trials was repeated without a break.

Magnitude of the Majority Effect

The procedure just described permits a simple quantitative determination of the majority effect. An estimate of a minority subject on a critical trial may be correct and therefore independent of the majority, or it could be an error either identical with that of the majority or in its direction. We may therefore take the number of errors as an index of the effect the majority exerted upon a given minority of one. Since there was a total of twelve critical trials, the

errors (and the independent responses) can vary from zero to twelve, inclusive. To be sure, the errors were not of the same magnitude from trial to trial; as we have seen, the trials differed in a number of respects. For the present we may postpone these distinctions and ask how often the subjects erred in relation to the erroneous judgments of the majority.

In order to evaluate the performance of the critical subjects, we need to know how a comparable group judges when the majority condition is excluded. Accordingly the lines were judged individually by two groups, totalling 37, selected from another and comparable college population. Each subject wrote down his judgments on a prepared form, without knowledge of the estimates of his neighbors.

Results

1. The estimates of the control group were virtually free of error. Thirty-five of 37 subjects made errorless estimates; of the remaining two subjects one showed one error, the other two errors. The proportion of errors was less than 1 per cent of the total number of critical estimates.

2. In contrast, the critical subjects showed a marked movement toward the majority. Errors increased strikingly, their frequency among individual subjects ranging from 0 to 12, or up to the maximum the conditions permitted. Only one-fourth of the subjects in the three experimental groups showed errorless performances, while in the control group 95 per cent were free of error. The mean number of errors in the three experimental groups varied from 4.0 to 5.2, as against a mean error of .08 in the control group. The action of the majority distorted one-third of the reported estimates, in contrast with errors of less than 1 per cent under control conditions. Inspection of the data suffices to show that the differences between each of the three experimental groups and the control group are highly significant. We also compared the frequency of subjects with and without errors (0 errors vs. 1 to 12 errors) in the combined experimental groups and the control group.

3. While the majority effect was considerable, it was by no means complete, or even the strongest force at work. The preponderance of estimates was, in each of the experimental groups, correct or independent of the majority, evidence that the given stimulus conditions —the facts that were being judged—were, under the circumstances, the most decisive.

4. The data reveal the presence of extreme individual differences

in response to the experimental condition. There were completely independent subjects, and there were others who went over to the majority without exception; the distribution was continuous between these extremes. One-fourth of the experimental groups (24 per cent) gave errorless estimates, while an approximately equal number (27 per cent) gave majority-determined estimates from eight to twelve times. Between these extremes is to be found one-half of the critical group, with errors ranging from one to seven. That the majority elicited widely different reactions is one significant aspect of the present findings.

5. As a further demonstration of the majority effect we may cite the results on the neutral trials—those to which the majority responded correctly. On these trials the subjects found that their observations were confirmed unanimously by the majority. We should therefore find that the neutral trials differ significantly from the critical trials. On the other hand, we should anticipate no marked differences between these trials in the control group. The results substantiate these simple inferences. On neutral trials there were, in the experimental groups, only three errors (out of 738 judgments); the control group gave six errors (out of 222 judgments) on the same trials.

From the preceding analysis we draw the following conclusions:

1. The unanimously wrong majority produced a marked and significant distortion in the reported estimates. This is attested by the high and consistent differences between the experimental and control groups.

2. Despite the effect of the majority the preponderance of estimates was, under the present conditions, independent of the majority.

3. Individuals responded in fundamentally different ways to the opposition of the majority, ranging from complete independence to complete yielding.

Almost as old as human self-consciousness are questions about the apparent tendency of man to seek out the company of his fellows. Is man truly a social being, or is social organization imposed upon him? In past centuries, social philosophers—Locke, Hobbes, Bentham, Rousseau, and others—have dealt extensively in vastly differing ways with such questions. But only in recent years have the encompassing questions concerning man's social life been translated into more manageable form and brought into the laboratory for experimental probing.

In the following study, Stanley Schachter subjected the phenomenon of affiliation to a series of experimental examinations. What happens when a keen, experimentally oriented mind attempts to define the affiliative motive and to describe precisely some of the circumstances under which affiliative behavior will and will not occur? Is there an unlearned affiliative motive, or is affiliation a learned tendency? Is it a motive of constant strength, or does it vary from situation to situation? And if it varies in strength, how and how much? The following experiments furnish material relevant to such questions.

THE PSYCHOLOGY OF AFFILIATION*

Stanley Schachter

Affiliation and Isolation

Social Needs. Perhaps the single study directly concerned with the experimental examination of specific needs which can be satisfied only by means of interpersonal contact is the study of Festinger, Pepitone, and Newcomb (1952), where it is suggested that there are two classes of needs which group membership satisfied—needs such as approval, status, and help, which require singling the individual out and necessarily involve high social visibility and individual identifiability; and needs whose satisfaction requires being "submerged in the group," a condition labeled "de-individuation" and described as a state of personal anonymity in which the individual does not feel singled out or identifiable.

It is suggested that there are many kinds of behavior in which the individual would like to engage where activity is prevented by the existence of inner restraints. Instances of such behavior might be acting wildly and boisterously, "talking dirty," expressing hostilities, and so on. Festinger suggests that under conditions where the individual is not "individuated" in the group, such restraints will be reduced and individuals will be able to satisfy needs which might otherwise remain unsatisfied. In an ingenious experiment, these authors demonstrate that the state of de-individuation in the group does occur and is accompanied by reduction of the inner restraints of the members of the group. Further, they demonstrate that groups in

* Excerpts reprinted from *The Psychology of Affiliation* by Stanley Schachter with the permission of the publishers, Stanford University Press. © 1959 by the Board of Trustees of the Leland Stanford Junior University. Pp. 2–24, 90–102, 132, 133.

which such restraints are reduced are more attractive to their members than groups in which restraints are not reduced.

This notion of a "drive for self evaluation" has slowly emerged as the theoretical underpinning for a schema and body of research on social influence. Essentially it has been assumed that, given such a drive, tendencies exist to establish the "rightness" or "wrongness" of an opinion and the "goodness" or "badness" of an ability. If it is possible to check against physical reality or against authoritative sources, such evaluation may be forthright and simple. More often than not, however, such evaluative resources are nonexistent and it is possible to evaluate only by reference to other people. One's ability is good or bad only in comparison with the ability of others; one's opinion may be evaluable as right or wrong only in terms of agreement or disagreement with the opinions held by other people. Such social evaluation is possible, however, only when the comparison points are relatively close to one's own position. A sandlot baseball player learns little about his ability as a batter by comparing himself with Willie Mays; he learns a great deal by comparing himself with his teammates. A Jew does not evaluate the correctness of his opinions of Zionism by comparing them with those of an Arab nationalist. It has been demonstrated (Dreyer, 1954; Festinger, Gerard, *et al.*, 1952; Hoppe, 1930) that stable evaluation of opinions or abilities is possible chiefly when those with whom comparison is made are quite close to one's own position. The greater the extent to which other people agree with one's opinion, the greater the feeling of correctness and the greater the stability of the opinion. This series of assumptions concerning the evaluation process leads to the expectation that when discrepancies of opinion or ability exist among the members of a group, tendencies will arise to reduce this discrepancy. Spelling out and testing the implications of this expectation, a series of experiments have been conducted in order to examine the conditions under which influence will be exerted by the group (Back, 1951; Hoffman, Festinger, and Lawrence, 1954; Schachter, 1951), influence will be accepted by the individual (Back, 1951; Festinger and Thibaut, 1951), and deviates rejected by the group (Hoppe, 1930).

Though the assumption of a drive for evaluation of the opinions and abilities has proven particularly fruitful in generating research tests of its implications, whether or not such a drive is indeed a major source of "gregariousness" is still an open question, for there are, unfortunately, almost no studies bearing directly on the question. The single piece of research that is relevant is the case study by Festinger, Riecken, and Schachter (1956) of a millennial group. This group had

predicted, for a specific date, the destruction of the world as we know it through a series of earth-shaking cataclysms—a prediction which was not confirmed. The effect of this disconfirmation was, of course, to shake all confidence in the belief system which had led to this prediction. The almost immediate reaction to disconfirmation was a frenzy of attempts to convert and proselyte. Prior to disconfirmation, this group had been secretive and inhospitable, avoiding all publicity and contact with outsiders. Following disconfirmation, they exposed themselves to the world, called in newspapers, and worked furiously to convince possible converts—all, presumably, in an attempt to establish a new and firm social basis for their beliefs.

If one broadens this "drive for evaluation of opinions and abilities" into a more general "drive for cognitive clarity," one does find additional evidence for the proposition that evaluative or cognitive needs are an important source of affiliative behavior. There are many thoroughly ambiguous issues that are impossible to clarify by reference either to the physical world or to authoritative sources. For such issues, if one assumes a need for cognitive clarity, it is plausible to assume that attempts to reduce ambiguity will take the direction of intensive social contact and discussion. Evidence that this is indeed the case can be found as a by-product of a study of rumor transmission conducted by Schachter and Burdick (1955). This study took place in a girls' school. In a deliberate attempt to create an event that would be mystifying and not readily explainable, the principal of the school went into several classrooms during first-hour classes, pointed at a single girl, and said, "Miss K., get your hat, coat, and books and come with me. You will be gone for the rest of the day." Nothing of this sort had ever occurred before and absolutely no explanation was offered. Not surprisingly, the remaining girls spent almost all of the school day in intensive social contact and communication in an attempt to clear up and understand what had happened.

Social Isolation. An examination of the consequences of social isolation shows convincingly that the social needs are indeed powerful ones. Autobiographical reports of such people as religious hermits, prisoners of war, and castaways make it clear that the effects of isolation can be devastating. For example (Weissberg, 1951), a prisoner writes, "Gradually the loneliness closed in. Later on I was to experience situations which amounted almost to physical torture, but even that seemed preferable to absolute isolation." Such reports are extremely common and seem to be as typical of those who have gone into voluntary isolation as of those forced into solitary confinement.

Aside from these reports of profound disturbance, anxiety, and pain, the condition of absolute social deprivation as described in these autobiographical reminiscences seems responsible for many other dramatic effects. Most prominently, the following three trends characterize many of these reports.

First, the reported "pain" of the isolation experience seems typically to bear a nonmonotonic relationship to time—increasing to a maximum and then, in many cases, decreasing sharply. This decrease in pain is frequently marked by onset of a state of apathy sometimes so severe as to resemble a schizophrenic-like state of withdrawal and detachment, so marked in some cases that prisoners have to be physically removed from their cells (Faris, 1934). Indeed, this condition is so common that the Church recognizes the state of acedia (or sloth, one of the seven deadly sins) as an occupational disease of hermits.

Second, there seems to be a strong tendency for those in isolation to think, dream, and occasionally hallucinate about people. Indeed, comparison of the anchoritic or hermit saints with the cenobitic saints indicates greater frequency of visions and hallucinatory experiences for the religious solitaries.

And third, those isolates who are able to keep themselves occupied with distracting activities appear to suffer less and be less prone to the state of apathy. Those prisoners who are able to invent occupations for themselves and schedule for themselves activities such as doing mental arithmetic or recalling poetry seem to bear up better under the experience than those who either think chiefly of their plight or dwell on the outside world. Needless to say, cause and effect are completely confounded in this relationship as stated, but Schönbach (1956) in an experimental study addressed directly to this point has demonstrated that a state of deprivation is far more bearable under manipulated conditions of irrelevant and distracting thought than under conditions where thought is concerned almost wholly with the source of deprivation.

Though all of this is of absorbing interest, its interpretation is thoroughly confounded by the multitude of coacting variables and the indistinguishability of cause and effect; proper investigation of these various phenomena demands direct and controlled study. Several years ago, therefore, in a preliminary attempt to examine some of the consequences of social isolation, the author conducted a small series of isolation case studies. Student volunteers, who were paid ten dollars a day, were supplied with food and locked in a windowless room for periods ranging from two to eight days. Their watches and

wallets were removed and their pockets emptied. Some subjects were provided with a variety of minor distracting devices, such as metal-link puzzles, dart boards, and so on. Other subjects were left completely to their own devices and entered a room barren of anything but a bed, a chair, a lamp, a table, and unknown to the subject, a one-way observation mirror. In no case was a subject permitted books, radio, or any device that could directly serve as a social surrogate. For the period of isolation, all subjects were left completely to their own resources to spend their time as they would and with absolutely no communication with the experimenter or the outside world. In addition to these voluntary isolates, interviews were conducted with a few prisoners who, as punishment, were in solitary confinement cells at the Minnesota State Prison.

After the extremes of the autobiographical reports, this first-hand contact was sobering. The prisoners, who had been in solitary confinement for periods ranging from three to five days, were not particularly troubled by the experience; they were interested chiefly in bumming cigarettes and complaining about the food. As for the students, five subjects were run in the experimental isolation room. One subject broke down after two hours, almost hammering down the door to get out. Of three subjects who remained in isolation for a two-day period, one admitted that he had become quite uneasy and was unwilling to go through the experience again, while the other two subjects seemed quite unaffected by two days of isolation. The fifth subject was isolated for eight days. He admitted that by the end of this eight-day period he was growing uneasy and nervous, and he was certainly delighted to be able to see people again; but one could hardly describe his condition as having grown intolerable.

The results of these few case studies are clearly incompatible with the common report, in the autobiographies analyzed, that isolation is, at some point, an agonizingly painful process. Two explanations come readily to mind: the period of isolation is far longer for real-life isolates than for our subjects; and other variables, most of all fear, account for the extreme suffering of real-life isolates.

Neither of these explanations seems to suffice. Though fear is certainly a reasonable alternative explanation for such isolates as prisoners of war, it can hardly be considered an adequate explanation for the reported sufferings of voluntary isolates such as religious solitaries.

The length of time in isolation does not seem a satisfactory explanation, for in quite a few of these autobiographical reminiscences the reported peak of suffering occurs after only a few hours of isolation and in many of these reports the peak seems to occur within

two or three days of isolation. Many other explanations are possible, of course, but the incompatibility of our case studies with the autobiographical reports can most reasonably be explained in terms of the biased sample of documents available for this sort of library survey. Certainly not everyone in isolation suffers so dramatically, and probably only those who have really undergone extreme suffering bother to write about the experience. Also, our own subjects were volunteers, and it is likely that only those who did not anticipate any difficulties would agree to take part in this study.

In any case the fact that we were unable to produce a state of social need or of mild suffering with any consistency rules out further research along this line. It had been our intention to conduct an experiment, eventually, in which the social needs would be manipulated by means of social deprivation and the effects of this manipulation noted on a variety of variables, such as influenceability, post-isolation social behavior, and so on. The results of these few cases made it quite clear that this would not be an easy experiment to carry out. It seemed evident that it would require some ten to fourteen days of isolation to produce the state of social need required, that in the process the very best subjects would be lost, and that to complete the multi-condition experiment planned would, with the facilities available, require approximately eleven years.

Needless to say, it was with considerable relief that this particular experiment was abandoned. Happily, however, this was not all wasted effort, for it did lead directly into a more promising line of investigation on the nature of the variables affecting the affiliative tendency.

Anxiety and Affiliation

One of the consequences of isolation appears to be a psychological state which in its extreme form resembles a full-blown anxiety attack. In many of the autobiographical reports and in the interview protocol of our single subject who demanded his release after only two hours of confinement, there are strong indications of an overwhelming nervousness, of tremendous suffering and pain, and of a general "going-to-pieces." A milder form is illustrated by the two of our five subjects who reported that they had felt jittery, tense, and uneasy. At the other extreme, two subjects went through the experience with complete aplomb and reported no difficulties. The whole range of reactions is represented, and though we have little idea as to the variables which determine whether the reaction to isolation will be equanimity or terror, it is evident that anxiety, in some degree, is a fairly common concomitant of isolation. For a variety of frankly

intuitive reasons, it seemed reasonable to expect that if conditions of isolation produce anxiety, conditions of anxiety would lead to the increase of affiliative tendencies. In order to test this proposition the following very simple experiment was constructed.

Experimental Procedure. There were two experimental conditions, one of high anxiety and one of low anxiety. Anxiety was manipulated in the following fashion. In the high-anxiety condition, the subjects, all college girls, strangers to one another, entered a room to find facing them a gentleman of serious mien, horn-rimmed glasses, dressed in a white laboratory coat, stethoscope dribbling out of his pocket, behind him an array of formidable electrical junk. After a few preliminaries, the experimenter began:

Allow me to introduce myself, I am Dr. Gregor Zilstein of the Medical School's Departments of Neurology and Psychiatry. I have asked you all to come today in order to serve as subjects in an experiment concerned with the effects of electrical shock.

Zilstein paused ominously, then continued with a seven- or eight-minute recital of the importance of research in this area, citing electroshock therapy, the increasing number of accidents due to electricity, and so on. He concluded in this vein:

What we will ask each of you to do is very simple. We would like to give each of you a series of electric shocks. Now, I feel I must be completely honest with you and tell you exactly what you are in for. These shocks will hurt, they will be painful. As you can guess, if, in research of this sort, we're to learn anything at all that will really help humanity, it is necessary that our shocks be intense. What we will do is put an electrode on your hand, hook you into apparatus such as this (Zilstein points to the electrical-looking gadgetry behind him), give you a series of electric shocks, and take various measures such as your pulse rate, blood pressure, and so on. Again, I do want to be honest with you and tell you that these shocks will be quite painful but, of course, they will do no permanent damage.

In the low-anxiety condition, the setting and costume were precisely the same except that there was no electrical apparatus in the room. After introducing himself, Zilstein proceeded:

I have asked you all to come today in order to serve as subjects in an experiment concerned with the effects of electric shock. I hasten to add, do

not let the word "shock" trouble you; I am sure that you will enjoy the experiment.

Then precisely the same recital on the importance of the research, concluding with:

What we will ask each one of you to do is very simple. We would like to give each of you a series of very mild electric shocks. I assure you that what you will feel will not in any way be painful. It will resemble more a tickle or a tingle than anything unpleasant. We will put an electrode on your hand, give you a series of very mild shocks and measure such things as your pulse rate and blood pressure, measures with which I'm sure you are all familiar from visits to your family doctor.

From this point on, the experimental procedures in the two conditions were identical. In order to get a first measurement of the effectiveness of the anxiety manipulation, the experimenter continued:

Before we begin, I'd like to have you tell us how you feel about taking part in this experiment and being shocked. We need this information in order to fully understand your reactions in the shocking apparatus. I ask you therefore to be as honest as possible in answering and describe your feelings as accurately as possible.

He then passed out a sheet headed "How do you feel about being shocked?" and asked the subjects to check the appropriate point on a five-point scale ranging from "I dislike the idea very much" to "I enjoy the idea very much."

This done, the experimenter continued:

Before we begin with the shocking proper there will be about a ten-minute delay while we get this room in order. We have several pieces of equipment to bring in and get set up. With this many people in the room, this would be very difficult to do, so we will have to ask you to be of kind enough to leave the room.

Here is what we will ask you to do for this ten-minute period of waiting. We have on this floor a number of additional rooms, so that each of you, if you would like, can wait alone in your own room. These rooms are comfortable and spacious; they all have armchairs, and there are books and magazines in each room. It did occur to us, however, that some of you might want to wait for these ten minutes together with some of the other girls here. If you would prefer this, of course, just let us know.

We'll take one of the empty classrooms on this floor and you can wait together with some of the other girls there.

The experimenter then passed out a sheet on which the subjects could indicate their preference. This sheet read as follows:

Please indicate below whether you prefer waiting your turn to be shocked alone or in the company of others.
_____I prefer being alone.
_____I prefer being with others.
_____I really don't care.

In order to get a measure of the intensity of the subjects' desires to be alone or together, the experimenter continued:

With a group this size and with the number of additional rooms we have, it's not always possible to give each girl exactly what she'd like. So be perfectly honest and let us know how much you'd like to be alone or together with other girls. Let us know just how you feel, and we'll use that information to come as close as possible to putting you into the arrangement of your choice.

The experimenter then passed out the following scale:

I very much prefer being alone	I prefer being alone	I don't care very much	I prefer being together with others	I very much prefer being together with others

To get a final measure of the effectiveness of the anxiety manipulation, the experimenter continued:

It has, of course, occurred to us that some of you may not wish to take part in this experiment. Now, we would find it perfectly understandable if some of you should feel that you do not want to be a subject in an experiment in which you will be shocked. If this is the case just let us know. I'll pass out this sheet on which you may indicate whether or not you want to go on. If you do wish to be a subject, check "yes"; if you do not wish to take part, check "no" and you may leave. Of course, if you check "no" we cannot give you credit in your psychology classes for having taken part in this experiment.

After the subjects had marked their sheets, the experiment was over and the experimenter took off his white coat and explained in detail the purpose of the experiment and the reasons for the various deceptions practiced. The cooperation of the subjects was of course enlisted in not talking about the experiment to other students.

In summary, in this experimental set-up, anxiety has been manipulated by varying the fear of being shocked. The affiliative tendency is measured by the subject's preference for "Alone," "Together," or "Don't care" and by the expressed intensity of this preference.

Subjects. The subjects in this study were all girls, students in Introductory Psychology courses at the University of Minnesota. At the beginning of each semester, students in these classes may sign up for a subject pool. More than 90 percent of the students usually do so, for they receive one additional point on their final examination for each experimental hour they serve. This fact should be kept in mind when considering the proportion of subjects who refused to continue in the experiment.

The experimental sessions were run with groups of five to eight girls at a time, for a total of 32 subjects in the high-anxiety condition and 30 subjects in the low-anxiety condition. A deliberate attempt was made to insure that the subjects did not know one another before coming to the experiment. Despite our best efforts, 16 percent of the subjects had known one another beforehand. Data for these subjects were discarded, for it seemed clear that previous friendship would thoroughly confound the meaning of a choice of "Together" or "Alone." It should be noted, however, that though in both conditions such girls chose "Together" considerably more often than did girls who had not known one another before the experiment, the between-condition differences were in the same direction for both groups of subjects.

On this same point, an attempt was made to prevent the subjects from talking to one another while waiting for the experiment to begin, for again it was felt that an interesting conversation or a particularly friendly girl might confound the choice of "Together" or "Alone." As each subject entered the experimental room, she was handed a multipaged questionnaire labeled "Biographical Inventory" and asked to begin filling it out. This device worked well and effectively prevented any chatter until all of the subjects had arrived and the experimenter could begin his monologue.

Results. Table 1 presents data permitting evaluation of the effectiveness of the manipulation of anxiety. The column labeled "Anx" pre-

sents the mean score, by condition, of responses to the question "How do you feel about being shocked?" The greater the score, the greater the anxiety; a score greater than 3 indicates dislike. Clearly there are large and significant differences between the two conditions.

Table 1. *Effectiveness of the Anxiety Manipulation.*

	N	Anx	% *S*'s refusing to continue
Hi Anx	32	3.69	18.8
Lo Anx	30	2.48	0
	$t = 5.22$		
	$p^* < .001$		Exact $p = .03$

* The probability values reported throughout this volume are all based on two-tailed tests of significance.

The results of the second measure of anxiety, a subject's willingness to continue in the experiment when given the opportunity to drop out, are presented in the column labeled "% *S*'s refusing to continue." This is perhaps, the best single indicator of the effectiveness of the manipulation, for it is a reality-bound measure. Again it is clear that the manipulation of anxiety has been successful. Some 19 percent of subjects in the high-anxiety condition refused to continue in the experiment. All subjects in the low-anxiety condition were willing to go through with the experiment.

The effect of anxiety on the affiliative tendency may be noted in Table 2, where, for each condition, the number of subjects choosing "Together," "Alone," or "Don't Care" is tabulated. It is evident that there is a strong positive relationship between anxiety and the index of affiliative tendency, the proportion of subjects choosing the "Together" alternative. Some 63 percent of subjects in the high-anxiety condition wanted to be together with other subjects while they waited to be shocked. In the low-anxiety condition only 33 percent of the subjects wished to be together.

The column labeled "Overall Intensity" in Table 2 presents the mean score for all subjects, in each condition, of responses to the scale designed to measure the intensity of the desire to be alone or together with others. The point "I don't care very much" is scored as zero. The two points on this scale indicating a preference for being together with other subjects are scored as +1 and +2 respectively. The points indicating a preference for being alone are scored as −1

and −2. The mean scores of this scale provide the best overall index of the magnitude of affiliative desires, for this score combines choice and intensity of choice. Also, this index incorporates the relatively milder preferences of subjects who chose the "Don't Care" alternative, for 30 percent of these subjects did express some preference on

Table 2. *Relationship of Anxiety to the Affiliative Tendency.*

	No. Choosing			Overall
	Together	Don't Care	Alone	Intensity
Hi Anx	20	9	3	+.88
Lo Anx	10	18	2	+.35
	X^2 Tog vs DC + A = 5.27			$t = 2.83$
	$.02 < p < .05$			$p < .01$

this scale. Again it is clear that affiliative desires increase with anxiety. The mean intensity score for high-anxiety subjects is +.88 and for low-anxiety subjects is +.35.

Expectations, then, are confirmed, but confirmed, in truth, in a blaze of ambiguity, for the several terms of the formulation "anxiety leads to the arousal of affiliative tendencies" are still vague. What is meant by the "affiliative tendency," and precisely why do the subjects choose to be together when anxious? What is meant by "anxiety," and what are the limits of this relationship? What is meant by "leads to," and, historically, just how and why is this relationship established? The remainder of this monograph is devoted to consideration of these questions and to a description of research designed to clarify and elaborate the nature of this relationship.

The Affiliative Tendency—Directionality

Anxiety leads to the arousal of affiliative tendencies—but why? What specific needs are aroused by this manipulation of anxiety? What satisfactions are sought in the company of other people? So many explanations of the anxiety-affiliation relationship are possible that let us proceed by asking a question which will permit us to begin discriminating among possible alternative formulations of this relationship. Is the choice of "Together" a discriminating choice or not? That is, does this choice represent a desire to be with people in general, *any* kind of people; or is it a desire to be with people of a certain kind—in this case people who are in a similar situation? In the

experiment described, it is impossible to make this distinction, for if a subject chose "Together," she was necessarily choosing to be with people in a similar plight. Yet this question is of primary importance in the interpretation of this experiment, for one would seek to account for the anxiety-affiliation relationship along entirely different theoretical lines, depending upon whether the affiliative choice was general or directional. Should the choice of "Together" prove to be general, it would point our investigations and formulation toward a sort of generalized need for affiliation. If the choice of "Together" is directional, one would search for more specific needs whose satisfaction requires the presence of others in a similar plight. In order to settle the issue of directionality the following experiment was conducted.

Procedure. There were two experimental conditions, in both of which subjects were run one at a time instead of in the group setting employed in the previous experiment. Again, the subjects were all girls, undergraduates who received extra credit in their psychology courses for taking part in the experiment. In most other respects the experimental procedure in both conditions was identical with that used in the "Hi Anx" condition—the same room with electrical apparatus strewn about, the same medical experimenter, and precisely the same pattern about the importance of research on electric shock and the necessary painfulness of the shocks that would be administered. The same instruments were used to measure the degree of manipulated anxiety and to determine the desire to be alone or with others, although one measuring instrument was modified for this study. A new scale was substituted for the scale originally used to measure the intensity of a subject's desire to be alone or with others. The zero point was eliminated and the scale points read:

_____I very much prefer being alone.	(−3)
_____I prefer being alone.	(−2)
_____I slightly prefer being alone.	(−1)
_____I slightly prefer being together with others.	(+1)
_____I prefer being together with others.	(+2)
_____I very much prefer being together with others.	(+3)

The figures in parentheses represent the values used in scoring this scale.

The two conditions differed in only a single respect. In one condition, to be called the "Same State" condition, immediately after the

experimenter had indicated that there would be about a ten-minute delay before the experiment could begin, he continued:

Here, then, is what we will ask you to do for this ten-minute period of waiting. We have on this floor another room, so that, if you'd like, you may wait alone. This room is comfortable and spacious, it has an armchair and there are books and the latest magazines in the room. It did occur to us, however, that you might prefer waiting together with some other people. If this is the case we do have an alternative for you. At the present time some of my assistants are talking to other girls who will be taking part in this same experiment. If you would prefer to wait together with some other girls we have a waiting room down the hall in which you may wait together with some of these girls.

In the second condition, to be called the "Different State" condition, after describing the "Alone" room, the experimenter continued:

It did occur to us, however, that you might prefer waiting together with some other people. If this is the case we do have an alternative for you. There is a waiting room down the hall in which there are other girls waiting to talk to their professors and advisors. If you would prefer, you may wait here.

In the "Same State" condition, then, the subjects have a choice of being alone or being with other girls who are, presumably, undergoing exactly the same experience. In the "Different State" condition, the subjects have a choice of being alone or being with other girls with whom, as far as the experiment goes, they have nothing in common. If the affiliative choice is general, so that anxious subjects want to be with anyone at all just so long as they are with *someone,* there should be no difference in the proportion of subjects who choose "Together" in the two conditions. If the affiliative choice is directional, the subjects in the "Same State" conditions should tend to choose "Together" more often than those in the "Different State" condition.

Results. Before examining the distribution of "Alone" and "Together" choices in the two conditions, note the levels of manipulated anxiety in Table 3. In addition to these twenty subjects, one girl in the "Same State" condition refused to continue in the experiment. She made this decision, however, before choosing among the "Alone," "Together," and "Don't Care" alternatives. Since these data on

anxiety level are being presented only to allow evaluation of the comparability of subjects who made this choice, this single case is excluded from this table.

Table 3 makes it immediately clear that there are no differences in anxiety between the two conditions. On both measures, the scores are almost identical for the two groups of subjects. Any differences in affiliative choice pattern cannot, then, be attributed to differential anxiety.

Table 3. *Level of Anxiety in the Two Experimental Conditions.*

	N	Anx	% *S*'s refusing to continue
Same State	10	3.30	0
Different State	10	3.40	0
		$p = n.s.$	$p = n.s.$

Parenthetically, it might be noted that though the anxiety-producing instructions were precisely the same as those used in the high-anxiety condition described earlier, these anxiety scores are noticeably lower than corresponding scores in the previous experiment. (See Table 1.) This difference in the effectiveness of the high-anxiety manipulation seems most clearly attributable to differential rapport between experimenter and subject. Despite the experimenter's deliberate attempt to behave identically in both experiments, inevitably a more personal relationship resulted in the two-person experiment. In this two-person study, the subjects felt free to ask questions and make comments and frequently did so, resulting in a relationship more informal than in the group setting, where almost no subject seemed to feel uninhibited enough to comment freely.

The effect of these manipulations on the pattern of affiliative choice is presented in Table 4, where for each condition the number of subjects choosing each of the alternatives is tallied. It is evident that the affiliative choice is highly directional. In the "Same State" condition, where a subject has the opportunity to be with other subjects in the experiment, six of ten subjects chose the "Together" alternative. In the "Different State" condition, where a choice of "Together" would allow the subjects to be with people who have nothing to do with the experiment, none of the ten subjects chose "Together." On the overall intensity scale, the difference between the two conditions is huge. It will be recalled that this is a scale designed to measure the

intensity of a subject's desire to be alone or with others. It should be noted in Table 4 that a mean minus score is recorded for the "Different State" condition. Subjects somewhat preferred being alone to being with people who had nothing to do with the experiment.

Table 4. *Directionality and the Affiliative Tendency.*

	No. Choosing			
	To-gether	Don't Care	Alone	Overall Intensity
Same State	6	4	0	+1.40
Different	0	10	0	− .20
				$t = 4.93$
	Exact p Tog vs DC + A = .01			$p < .001$

Plainly, then, under conditions of anxiety the affiliative tendency is highly directional—an experimental finding which removes one shred of ambiguity from the old saw "Misery loves company." Misery doesn't love just any kind of company, it loves only miserable company. Whatever the needs aroused by the manipulation of anxiety, it would seem that their satisfaction demands the presence of others in a similar situation.

Hunger and Affiliation

The initial experiment described resulted in the formulation "anxiety leads to the arousal of affiliative tendencies." What precisely is meant by anxiety and what are the limits of the relationship? What order of phenomena leads to the arousal of affiliative tendencies? Though we have freely used the term "anxiety," it is quite clear that the experimental studies have involved only the manipulation of physical fear. Would the same relationships hold for such brands of anxiety as stage fright, test anxiety, job insecurity, and so on? More importantly, what is the conceptual status of the anxiety variable? Should it be considered as an emotional state or as a drive state? Such questions are of course basic to a true understanding of this relationship, for they point directly to the fundamental theoretical problem—for what class of psychological phenomena does this relationship with the affiliative tendency hold?

Consideration of these matters led originally to speculation which at this point seems to us naive, deceptively oversimplified, and somewhat misleading. Reluctantly, however, it must be admitted that if the

reader is to understand precisely why the experiment about to be described was ever undertaken, this original line of argument must be reproduced. Simply put, the banal assumption that the social nature of an individual's reaction to anxiety will be determined by the extent to which people have served as anxiety reducers in the past did lead to a somewhat startling series of findings on the effects of ordinal position. The fruitfulness of this simple assumption led immediately to the notion that anxiety may be only one of a class of drives. Certainly if the child is hungry a person feeds it; if the child is thirsty a person gives it something to drink. In short, for a particular set of drives, people serve as drive reducers for one another, and it might just be that for such drives the affiliative impulse increases directly with drive state. The test of this suggestion required only the manipulation of drive state and a measure of the consequent magnitude of the affiliative tendency.

Experimental Procedure. Since it is comparatively simple to handle experimentally, the hunger drive was manipulated. There were three experimental conditions—high, medium, and low hunger. High hunger entailed a period of approximately 20 hours of food deprivation, medium hunger approximately 6 hours, and low hunger 0 hours of food deprivation.

The subjects were all male undergraduates, students in psychology and social science classes at the University of Minnesota, who had volunteered in their classes to take part in some undescribed "psychological experiment." The evening before the day of an experimental session, volunteers were telephoned and informed that an experiment on the effects of food deprivation on the sensations was to take place on the following afternoon. If they agreed to serve as subjects, which almost everyone did, those people who had been randomly preassigned to the high- and low-hunger conditions were asked to go without breakfast and lunch on the following day. Those subjects who were assigned to the medium-hunger condition were asked to eat their normal breakfast at their regular breakfast hour but to do without lunch. To make the experiment somewhat more palatable, all subjects were told that they could drink tea or coffee but no milk. Fairly intensive but gentle questioning after the experiment indicates that all of the subjects abided exactly by these instructions to do without food.

All subjects were asked to come to an experimental room at 2:00 o'clock on the afternoon following this phone call. Each subject in a particular experimental group was asked to come to a different room. When a subject who had been assigned to the low-hunger con-

dition arrived at his room, he was presented with an appetizing array of cold meats, cheese, bread, cookies, fruit, and coffee, and told:

As we told you over the phone, this is an experiment concerned with the effects of *particular* kinds of food deprivation and it is necessary for the sake of the experiment that all subjects eat the same kinds of things at precisely the same time interval before the experiment. It is important for the experiment that you eat as much of this food as you like until you are completely satisfied and no longer hungry. Okay?

The experimenter then continued:

While you are eating we would like you to do one more thing for us. In order to evaluate your reactions in the experiment, we must have information concerning the kinds of food you eat and how often you eat them. I have here a cookbook with a large number of recipes. I would like you to go through the pages listed on this sheet and, following the instructions on the sheet, list those dishes you have eaten and how frequently you have eaten them.

When subjects assigned to high- and medium-hunger conditions put in an appearance at their individual experimental rooms, they were not, of course, fed but they were handed the cookbook and given precisely the same instructions about the necessity for knowing the kinds of food they eat.

Hunger was manipulated in this fashion in order to rule out the possible artifactual effects that the process of starvation itself might have on the experimental results; e.g., subjects who had gone without food might feel very differently about the experiment and their role in it and be much more eager to talk about the experiment than subjects who had eaten normally. Thus, both high- and low-hunger subjects went without food for approximately 20 hours and differed only in that low-hunger subjects were fed immediately before the experiment proper. Medium-hunger subjects, of course, went without food for only some six hours. In all other respects, the pre-experimental situations for the three sets of subjects were identical. The cookbook bit was introduced only as a means of keeping all subjects sensibly occupied while they waited alone for the experiment to begin. It was necessary to feed the low-hunger subjects in private and since we knew nothing at all as to what effect waiting alone in a strange room for some twenty minutes might have on experimental results,

it seemed wisest to insure that this feature, too, was constant for all conditions.

The subjects remained in these rooms for approximately 20 to 25 minutes and were then assembled in a larger experimental room. There were always four subjects in each group—one from each of the three conditions and a fourth whose state of hunger was systematically rotated among the three conditions. For a few groups it was possible to get only three subjects and a stooge was used to fill up the group. The subjects were brought to the general experimental room one at a time, and while they waited for the experiment to begin they were asked to fill out a questionnaire containing numerous autobiographical questions and questions about food preferences. Again, this device was used to prevent the subjects from talking to one another.

Subjects assembled, the experimenter introduced himself and began:

I want to thank you all again for coming today and for agreeing to go without food for as long a period as you have. As you know, our experiment today is concerned with the effects of particular kinds of food deprivation on the sensations. Specifically we shall be concerned with giving each of you various tests of your vision and hearing. Though these studies are of theoretical interest to us, I think also you will agree that they are of immediate practical importance as well. Food deprivation of one sort or another is fairly common today—in the Orient, in Africa, in South America; and, though there have been many studies of the effects of food deprivation, we still, of course, have much to learn. As you might guess, these studies are also of potential interest and importance to the military, for, in combat, soldiers are frequently forced to go through prolonged periods on very limited or restricted rations and it is still an open question as to what are the precise effects of various kinds of rations.

Now I'd like to explain to you exactly what we will be doing. We are conducting four tests. Two of them are tests of vision and two are tests of hearing. Our apparatus is spread around on this floor and we conduct each of the tests in a different room. Each of you will be able to take only one test, since each of these tests requires about 35 minutes to administer. Now we need subjects in each of these tests and it does not matter to us which of the tests you individually take. And, since you've all been so good about coming today we'd like very much to give you freedom of choice to take whichever test interests you most. I've listed the names of these four tests on the board.

The experimenter reads off the names of the tests while he calls the subjects' attention to a blackboard on which the following is written:

Test	*Sense Modality*	*Adaptation Period*
1. Binocular Redundancy	Vision	Together with another Subject
2. Visual Diplacity	Vision	Alone
3. Auditory Peripherality	Hearing	Together with another Subject
4. Aural Angular Displacement	Hearing	Alone

He continues:

Now if you don't mind, I would prefer at this point not to describe the tests in any great detail. Let me, however, say this much—two of these tests, binocular redundancy and visual diplacity, are tests of the visual sense. Two of the tests, auditory peripherality and aural angular displacement, are tests of hearing. Each test is administered in a separate room. Each test will require a ten-minute period of adaptation—that is, for a ten-minute period immediately before you take the test of your choice, we will put you in another room where we will ask you to wait under constant and controlled conditions for a ten-minute period.

For two of these tests, visual diplacity and aural angular displacement, it will be necessary that you spend this ten-minute adaptation period alone. For the test of visual diplacity it is necessary that no moving objects be in your field of vision. For the test of aural angular displacement, it is necessary that you be exposed to a minimum of extraneous sound. If you choose either of these tests, then, we will ask you to spend the ten-minute adaptation period alone.

If you choose either of the other two tests, binocular redundancy or auditory peripherality, you will, of course, also have a ten-minute adaptation period, but we will ask you to spend this period together with another subject. You may of course talk or do anything else you like during this time. When the adaptation period is over we will take you each to the proper testing room where you will be tested in private.

The experimenter then briefly reviewed all he had said and passed out sheets on which were printed the names of the tests, the sense modality that each tested, and the nature of the adaptation period required for each test. The experimenter asked the subjects to rate each test and to "please write the words 'most like' next to the name

of the test you would most like to take. We will use this information to see that you take the test that interests you most."

This much done, the subjects were asked to answer a questionnaire, irrelevant to present concerns, and the experimenter then embarrassedly explained that the experiment was over and that there would be no tests of hearing or vision. Before going into an explanation the experimenter handed each subject a piece of paper and asked them to "write down the name of the test you said you would 'most like' to take; then think back to what went through your mind when you decided to take that test and tell us, as exactly as possible, why you decided to take that particular test, what factors made you decide the way you did." The entire experiment was then explained in detail, those who hadn't eaten were fed lavishly and fussed over, and all were sworn to secrecy. Before leaving, each subject filled out a brief questionnaire indicating whether he knew any of the other subjects present. None of the subjects knew other subjects in their groups beforehand.

The measure of the affiliative tendency is, of course, which of the tests the subjects indicated they would most like to take. The names of the tests are nothing but plausible-sounding nonsense syllables which could have no real meaning to the subjects, who made their choices largely in terms of the sense modality and the social or asocial nature of the adaptation period. Since there were two tests for each modality, if a subject preferred either vision or hearing he still chose between a "Together" and an "Alone" alternative.

Results. The nature of the relationship between hunger and the affiliative tendency is indicated in Table 5. In the column labeled "Together" is recorded the number of subjects in each condition who wanted most to take one of the tests whose adaptation period would be spent with another subject. The column headed "Alone" includes all subjects who preferred taking a test whose adaptation period required being alone. In the high-hunger condition 67 percent of the subjects preferred one of the "Together" alternatives; in medium hunger, 35 percent; and in low hunger 30 percent. Hunger appears to be similar to anxiety; for both there is a positive relationship with the affiliative tendency.

Further support for this relationship comes from a more detailed consideration of the determinants of these choices. A choice of a "Together" alternative could be made either because the individual wants to be with people or because of some specific interest in this particular test. A choice of an "Alone" alternative could be made

because the individual wants to avoid being with people or, again, because of interest in the specific test. If the data already presented are a true reflection of a relationship between hunger and the affiliative tendency, it should be expected that, considering all subjects who made "Together" choices, the hungrier the subject the more salient the social motive. Conversely, for those subjects choosing "Alone" it should be anticipated that the hungrier the subject the more likely it is that his choice has been determined by an interest in a specific test rather than by anti-social feelings. It will be recalled that immediately after the subjects were told that the experiment was over, they were asked to write down why they had chosen as they did. Because of the structure of the tests, almost all of these reasons

Table 5. *Relationship of Hunger to the Affiliative Tendency.*

	No. of subjects preferring to be:	
	Together	Alone
High Hunger	14	7
Medium Hunger	7	13
Low Hunger	6	14

$X^2 = 6.62$
$d.f. = 2$
$.02 < p < .05$

fall into one or both of the following categories:

1. A specific interest in the sense modality or an idiosyncratic interest in or interpretation of one of the four tests. Typical examples are: "I didn't know just exactly what the test was going to do, but I did think as long as it had something to do with hearing, I would be listening to possibly many different sounds. Another reason for the hearing test was because I have been using my eyes studying all morning and thought I would like to use my ears instead." "The reason I picked Binocular Redundancy is because the term redundancy is one that I am acquainted with. I had a high-school English teacher whose favorite word was redundancy. He used it too frequently, and it thus left an impression on me. I wanted to see just what Binocular Redundancy would be."

2. Socially relevant reasons. These include direct statements of a desire to be with other people and equally direct statements of a distaste for being with other people. Examples of social reasons are: "I wanted to spend the ten minutes in the company of one of the other people" and "I chose an experiment where I could first talk to

someone as I felt like talking right then." Examples of antisocial reasons are: "I did not choose the other visual test because I did not want to spend ten minutes with one of these strangers" and "The fact that I would be alone before the thing started attracted me because I like to be alone, rather than make trivial conversation, etc., for a certain amount of time."

In addition to these two categories a few subjects indicated that it didn't make any difference at all to them and that they had chosen pretty much at random.

The distribution of these categories as they related to choice and condition is presented in Table 6. This table is divided into two subtables: on the left are tabulated data for subjects who chose a "Together" test; on the right, the data for subjects who chose an "Alone" test. Some subjects gave only one reason for their choice, others gave several. If, no matter how many reasons a subject gave, one reason was either clearly social or antisocial, such a subject was tallied in the appropriate column labeled "Social Reasons" or "Antisocial Reasons." If no socially relevant reason was given, the subject was tallied in the appropriate "Modality Reasons" column. Those few subjects who indicated that they had chosen at random are included in the "Modality" column.

Turning first to those subjects who had elected a "Together" test, it is evident that almost everyone in the High Hunger condition who chose "Together" did so for socially motivated reasons. Thus, 92 percent of "Together" choosers in the High Hunger condition did so for social reasons. This proportion decreases as hunger decreases—in the Medium Hunger condition 71 percent and in the Low Hunger condition 50 percent of subjects choosing a "Together" alternative did so for social reasons.

Considering the "Alone" choosers, it is evident that the very hunger subjects who chose "Alone" did not do so for antisocial reasons but largely because of some interest in the specific test. Only 14 percent of the High Hunger subjects who chose an "Alone" test gave an antisocial reason for doing so. This proportion increases as hunger decreases, with 31 percent of Medium Hunger and 57 percent of Low Hunger subjects indicating antisocial reasons for choosing an "Alone" alternative.

Not only, then, did the hungry subjects choose to be together more often than less hungry subjects, but the stated motives for these choices are quite different for the various experimental groups. Choices of "Together" are determined by social motives to a greater extent for very hungry than for less hungry subjects. Social needs

determined the choice of 57 percent of the High Hunger subjects and of only 15 percent of the Low Hunger subjects. Antisocial reasons account for a majority of the "Alone" choices of the Low Hunger group, while all but one of the "Alone" choices of the High Hunger group are determined by some idiosyncratic interest in the specific

Table 6. *Reasons Given for Choice in Hunger-Affiliation Experiment.*

	No. of Subjects choosing a "Together" test who gave:		No. of Subjects choosing an "Alone" test who gave:	
	Social Reasons	Modality Reasons	Antisocial Reasons	Modality Reasons
High Hunger*	12	1	1	6
Medium Hunger	5	2	4	9
Low Hunger	3	3	8	6

* One subject in the high-hunger condition wrote an unintelligible and uncategorizable set of reasons for his choice of a "Together" alternative. This case is not included in this tabulation.

test. Antisocial feelings affected the choices made by 40 percent of the Low Hunger subjects and of less than 5 percent of the High Hunger subjects.

What about ordinal position? Though the number of cases available for this subanalysis is quite small, there are no indications of even budding similarity to the data on the effects of ordinal position on the affiliative response to anxiety. With slight variation, first-born and later-born subjects chose the "Together" alternatives in roughly similar proportions in each of the experimental conditions considered separately. Whether or not to consider this finding as inconsistent with earlier results depends, of course, on the final interpretation of this entire body of data, a matter to which [later attention] will be devoted. In terms of the initial formulation which led to this particular study, a tentative conclusion of no relationship would not seem to be either disconcerting or particularly enlightening, for the most exotic sort of reasoning would be required to argue that parents are differentially hunger reducing or that, as may very well be the case with anxiety, first-borns are hunger increasers for their later-born siblings. It should be anticipated, however, that were hunger to be accompanied by true anxiety (as is undoubtedly the case in a famine situation where there is no clear possibility of getting food at any time), symptoms of differential dependence would be manifested.

This experiment was undertaken originally in an attempt to delineate the nature of the variables affecting the affiliative tendency. Though it would be satisfying on the basis of this study to be able to conclude that the affiliative tendency is a positively increasing function of drive state, sober consideration precludes any such sweeping conclusion, for it is possible that both anxiety and hunger are cross-cut by dimensions of discomfort, of tension, and of emotion. And, though we have investigated only the effects of states of psychological disturbance on affiliative behavior, it would not be too surprising eventually to discover that the affiliative tendency also increases with joy. Though we shall return to a more detailed consideration of this entire matter [elsewhere], it seems clear that considerably more work will be necessary before one can feel really confident with any conclusion more general than that affiliative tendencies increase with increasing anxiety and increasing hunger.

Let us finally summarize the gist of these several studies and of our attempted formulation of these data. It has been our intention to examine circumstances which affect man's desires to be alone or with others. Substantively, it has been demonstrated primarily that affiliative tendencies increase with increasing anxiety and hunger. The overall pattern of experimental results on the anxiety-affiliation relationship has narrowed down the interpretive alternatives to a point where it appears theoretically rewarding to formulate this body of findings as a manifestation of needs for anxiety reduction and of needs for self-evaluation; that is, ambiguous situations or feelings lead to a desire to be with others as a means of socially evaluating and determining the "Appropriate" and proper reaction. This formulation is, to us, appealing, for if it proves correct it will not only delineate one class of circumstances which lead to the arousal of affiliative needs, but may, as well, permit the integration of the social determinants of opinion, ability, and emotion evaluation into a common conceptual scheme. Such a prospect is of course attractive, but let us be quite precise as to the extent to which such a formulation is supported by available evidence. There can be little doubt that the state of anxiety leads to the arousal of affiliative tendencies. The case for considering such findings as instances of the operation of evaluative needs rests largely on the experimental demonstration that anxiety is susceptible to social influence and that some degree of social interaction does result in increasing homogenization of feeling. Such results are encouraging, but clearly more evidence is needed. A definitive test of this explanation of the anxiety-affiliation relationship will require direct manipulation of the evaluative need. For the opinions and abili-

ties numerous studies of social influence have demonstrated the fruitfulness of the assumption that evaluative needs do operate and that social-comparison processes provide one major channel for opinion and ability evaluation. There have, as yet, been no rigorous attempts to demonstrate that unclarity or uncertainty about an opinion or an ability leads to the arousal of affiliative tendencies. The gaps are evident.

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GLOSSARY*

Affect. 1. A class name for feeling, emotion, mood, temperament. 2. A feeling-state or psychic tension, accompanied by noticeable bodily activity.

Anxiety. An unpleasant emotional state, subjectively experienced as a fusion of fear with the anticipation of future evil, in which a present and continuing strong desire or drive seems likely to miss its goal.

Asceticism. A mode of life in which sensuous pleasures are voluntarily renounced, especially with a view to serving a higher moral or religious ideal.

Associative learning. The principle that items experienced together enter into a connection, so that one tends to reinstate the other.

Asymptote. A straight line which a regular curve constantly approaches but never reaches, or reaches only at infinity.

Attitude. An enduring, learned predisposition to behave in a consistent way toward a given class of objects; a persistent mental and/or neural state of readiness to react to a certain object or class of objects, not as they are but as they are conceived to be.

Authoritarianism. In connection with personality, a personal tendency to crave or demand obedience and subordination; or the complex of traits said to be associated with that tendency.

Autokinetic effect or illusion. The apparent movement of a small stationary spot of light seen in darkness. The movement is usually a slow drift that may extend up to 20°.

Autonomic nervous system. A major division of the nervous system, concerned chiefly with the largely automatic regulation of smooth muscles and of glands.

Autophagous. Designating birds that are able to obtain their own food soon after hatching.

Bias. 1. The tendency to favor a certain position or conclusion. 2. The tendency to err in a certain direction. A biased sample is unrepresentative of all the cases concerning which an inference is to be drawn.

Cognition. A generic term for any process whereby an organism becomes aware or obtains knowledge of an object. It includes perceiving, recognizing, conceiving, judging, reasoning.

Conditioned response (CR). 1. The new or modified response that is elicited after conditioning by a new and formerly biologically inadequate stimulus. 2. The hypothetical mechanism or connection between stimulus and response established by conditioning.

Conditioned stimulus (CS). An originally ineffective stimulus for a given response which, by the experimental procedure of conditioning, has become capable of eliciting that response.

Conditioning (classical conditioning). The complex or organismic processes involved in the experimental procedure, or the procedure itself, wherein

* Most definitions are abridged from H. B. English and A. C. English, *A Comprehensive Dictionary of Psychological and Psychoanalytic Terms.* New York: Longmans, Green and Co., Inc., 1958.

two stimuli, one of which has a reflex or previously acquired connection with a certain response, whereas the other is not an adequate stimulus to the response in question, are presented in close temporal proximity, with the result that, upon such paired presentation of the two stimuli, usually many times repeated, the second stimulus acquires the potentiality of evoking a response very like the response provoked by the other stimulus.

Content validity (face validity). The extent to which a test is made up of items that, to casual inspection, seem related to the variable to be tested; common-sense validity.

Dependence. In connection with personality, a tendency to depend upon, to accept suggestions from, to model behavior after other and stronger persons; in social psychology, the extent to which members of a social group rely on each other in forming their ideas about social reality.

Dogmatic. Descriptive of individuals who seek to impose their views by authority, or without reliance on evidence.

Drive, drive state, or D. 1. A tendency, initiated by shifts in physiological balance, to be sensitive to stimuli of a certain class and to respond in any of a variety of ways that are related to the attainment of a certain goal. Drive is currently used in innumerable contexts, often quite loosely. The above is believed to be the greatest common denominator for its most frequent usages. 2. A hypothetical state of activity of an organism, or of some of its organs or tissues, that is a necessary condition before a given stimulus will elicit a class of behaviors.

Ego. The "I," self, person, or individual, as distinguished from others; that which is postulated as the "center" to which all a person's psychological activities and qualities are referred.

Egocentric. Concerned with oneself; preoccupied with one's own concerns and relatively insensitive to the concerns of others, though not necessarily selfish.

Emotion. A complex feeling-state accompanied by characteristic motor and glandular activities; or a complex behavior in which the visceral component predominates.

Emotional state. The condition of the organism during affectively toned experiencing, whether mild or intense.

Ethnocentrism. The tendency to exalt the superiority of the group (especially the national or ethnic group) to which one belongs and to judge outsiders, often contemptuously, by the standards of one's own group.

Extinction or extinction/experimental. The progressive reduction in the conditioned response consequent upon either of two experimental procedures: (a) the repeated presentation of the CS without the UCS; or (b) the withholding of reward after the emission of a conditioned instrumental response.

Extraceptive. Relative openness or sensitivity to external stimuli and events; used to describe the individual with relatively less openness to intrinsic or subjective factors and stimuli.

Fantasy. Imagining a complex object or event in concrete symbols or images, whether or not the object or event exists; or the symbols or images themselves; e.g., a daydream.

Filial. Pertaining to offspring or descendants.

Frame of reference. A system of standards or values, usually merely implicit, underlying and to some extent controlling an action, or the expression of any attitude, belief, or idea.

Frustration. 1. The blocking of, or interference with, an ongoing goal-directed activity. 2. The motivational and/or affective state resulting from being blocked, thwarted, disappointed, or defeated.

Genotype. 1. (Biology) the qualities or traits, shared by members of a biologically defined group, which form the basis for its classification; or a hypothetical animal or plant embodying those traits; a type organism. 2. (Genetics) the sum of all the traits that an individual is capable of transmitting biologically; or, a single such trait. 3. (Genetical and developmental psychology) the sum total of those hereditary factors which have a causative effect on development.

Habituation. 1. The gradual elimination of waste movement as a result of repeated reaction to a given situation. 2. The gradual increase in the certainty that the situation will elicit a given response.

Hallucination. A false perception which has a compulsive sense of the reality of objects although relevant stimuli are lacking.

Halo effect. The tendency, in making an estimate or rating of one characteristic of a person, to be influenced by another characteristic or by one's general impression of that person.

Heterogeneous. Characterizing any group of items or persons that show marked dissimilarity.

Heuristic. Leading to discovery; used to describe an argument admittedly imperfect but designed to stimulate further thinking or investigation.

Hypothetical construct. A construct referring to an entity or process that is inferred as actually existing (though not at present fully observable) and as giving rise to measurable phenomena, including phenomena other than the observable ones that led to hypothesizing the construct.

Id. (Psychoanalysis) that division of the psyche from which come blind, impersonal, instinctual impulses that lead to immediate gratification of primitive needs.

Idiom. 1. The characteristic ways in which ideas are expressed in a language. 2. A person's characteristic mode of behavior, especially of socially noticeable behaviors.

Idiosyncrasy. A behavior or trait, or some pattern of behaviors or traits, peculiar to an individual or to a group; especially, such a characteristic as is readily noted and serves to distinguish the individual from others.

Idiot. An individual who on a standard test of intelligence has an I.Q. below 20.

Imbecile. An individual who on a standard test of intelligence has an I.Q. between 20 and 50.

Imprinting. A particular kind of learning characterized by occurrence in very early life, rapidity of acquisition, and relative insusceptibility to forgetting or extinction. Imprinted behavior includes most (or all) behavior commonly called instinctive, but imprinting is used only descriptively. It is not always species-specific.

Impulse. 1. An act performed without delay, reflection, voluntary direction, or obvious differential control by the stimulus. 2. A tendency to act in a particular way; a readiness or impulsion to act: e.g., an *impulse* to scream. 3. The hypothesized physiological state or drive state that leads to the act or to the awareness.

In-group. A group with a strong feeling of belonging together, to the exclusion of others.

Inhibition. 1. (Physiol., psychol.) restraining or stopping a process from continuing, or preventing a process from starting although the usual stimulus is present; or the hypothetical nervous state or process that brings about the restraint. 2. A mental condition in which the range and amount of behavior is curtailed. 3. (Psychoanalysis) the process whereby an instinctual process is prevented from coming into consciousness by the activity of the superego.

Inner-directed. (D. Riesman) used to describe a person whose general direction of reaction amidst shifting environmental pressures is determined by an early-instilled value system.

Insessorial. Perching, or adapted for perching.

Instinct. An enduring tendency or disposition to act in an organized and biologically adaptive way that is characteristic of a given species.

Instrumental response (act). Behavior that effects a direct alteration in the environment.

Introspection. The contemplation of one's own experiences; the report of what mental content or process is present, and the description thereof in terms of elements and attributes.

Intuition. 1. Direct and apparently unmediated knowledge. Said sometimes of sense knowledge, since no cogitation is involved; and of any other directly received knowledge. 2. A judgment, meaning, or idea that occurs to a person without any known process of cogitation or reflective thinking.

Learning set. A generalized approach to problems as if the animal recognizes that they are to be solved by learning an instrumental response. The animal, whether human or subhuman, reacts on the implicit hypothesis that a means to the end is to be discovered. The learning set is itself believed to be a result of learning.

Leptokurtic. Pertaining to the shape of a distribution curve, characteristically a relatively steep rise from baseline to peak.

Masochism. 1. A sexual anomaly characterized by erotic or sexual excitement and/or satisfaction from being subjected to pain, whether by

oneself or another. 2. The deriving of pleasure from being offended, mistreated, scolded, dominated, embarrassed, etc.; the tendency to court such mistreatment.

Median or Md(n). 1. The value (attained by calculation) that separates into halves all the cases in a ranked distribution. 2. That score in a ranked distribution which has exactly half of the cases below it and half (or half minus one, when *N* is an even number) above it.

Mode. (Statistics) the most common value or class of values in a series; the peak or peaks in a frequency curve.

Motor (response). Pertaining to muscular movement (or by extension, to muscular movement and/or glandular activity), or to that which causes movement; pertaining to the executive aspect of organismic activity.

Nativism. The doctrine that stresses the influence of heredity, in contrast with that of experience, in the development of the structures or functions of an organism.

Need. 1. The lack of something which, if present, would tend to further the welfare of the organism or of the species, or to facilitate its usual behavior; or the thing, activity, or condition (internal or external) that is lacking. 2. A tension induced in the organism by such a lack, either internal or external. 3. (Exper.) a tissue deficiency defined in terms of controllable deprivations; e.g., a need for food as defined by a 24-hour deprivation, on the assumption that deprivation and tissue deficiency are closely correlated.

Neonate. A newborn infant.

Norm. 1. In statistics, a single value, or a range of values, constituting the usual performance of a given group, any measure of central tendency, or a range of values on each side of that measure. 2. In more general terms, the usual, the standard, the expected in quality, form, size, or function.

Nurturance. The tendency that leads one to provide nurture—i.e., food, shelter, and other care—to the young or to the weak and incapable.

Ontogeny or ontogenesis. The origin, or origin and development, of an individual organism or of one of its organs or functions.

Opinion. A belief, amenable to verbal expression, that one holds to be without emotional commitment or desire, concerning some object, condition, or person in the environment.

Outer-directed. (D. Riesman) of a person who responds primarily in conformity with other persons, who seeks approval and popularity as his chief goals.

Out-group. Any group of persons other than that to which the person in question belongs; or any persons, whether in a social grouping or not, who are not members of one's own group.

Pathology. 1. A condition of the organism such that a cell or other organ is prevented from performing its usual function; a diseased, disordered, or abnormal condition of the organism or its parts. 2. The scientific discipline which studies such conditions.

Perception. 1. An event in the person or organism, primarily cognitive but also controlled by the excitation of sensory receptors, bearing on the recognition or organization of external objects or events. 2. The awareness, or the process of becoming aware, of extraorganic or intraorganic objects or relations or qualities, by means of sensory processes and under the influence of set and of prior experiences.

Phenotype. (Genet., psychol.) that which actually makes its appearance in a living being; a *manifested* structure, condition, or function.

Phyla. One of the large divisions of plants or animals, as Protozoa, Porifera, etc.

Phylogeny. The origin and evolution of a species or other biologically defined population unit.

Pragmatic. Interested in practical outcomes, rather than in processes; disinclined to dogmatism or elaborate theorizing.

Precocial. Designates birds able to run about soon after hatching.

Primary reinforcement. Something which satisfies or reduces a biological need, as food or water.

Projection (projective). 1. The process of unwittingly attributing one's own traits, attitudes, or subjective processes to others; e.g., the child's naive assumption that adults feel as he does. 2. The process of ascribing to others one's own unacknowledged desires or faults.

Pseudoconditioning. The eliciting of a response to a previously neutral stimulus by presenting the neutral stimulus after a series of effective stimuli. The neutral stimulus is not paired, as in true conditioning, with the unconditioned stimulus or unconditioned response.

Psychosis. Any severe, specific mental disorder or disease process that has a characteristic origin, course, and symptoms.

Quartile. One of the three points that divide a serially ranked distribution into four parts, each of which contains one fourth of the scores.

Rapport. A comfortable and unconstrained relationship of mutual confidence between two or more persons, especially between tester and testee, counselor and client, teacher and class.

Reaction formation. (Psychoanalysis) establishment of a trait or a regular pattern of behavior that is directly opposed to a strong unconscious trend; or the pattern itself.

Reliability. (Measurement) the complex property of a series of observations, of a measuring instrument, or of the entire measuring process, that makes possible the obtaining of similar results upon repetition; the degree to which such similar results may be predicted; the degree to which measurement is free from random influence.

Repression. The exclusion of specific pyschological activities or contents from conscious awareness by a process of which the individual is not directly aware.

Sadism. 1. The tendency to associate sexual satisfaction with the infliction of pain upon another. 2. Loosely and generally, love of being cruel;

the compulsive tendency to vent aggression and destructiveness upon another person.

Schizophrenia or schizophrenic reaction. A group of psychotic reactions characterized by fundamental disturbances in reality relationships, by a conceptual world determined excessively by feeling, and by marked affective, intellectual, and overt behavioral disturbances.

Secondary reward. A previously neutral stimulus closely associated with a primary reinforcement, as, food may take on reinforcing properties. Thus an animal might learn a maze in order to reach a now empty white box in which it was previously fed.

Self-abasement. Extreme submission or yielding to another, together with strong feelings of inferiority.

Set (i.e., response set). A readiness to respond, an "openness" to stimulation.

Social psychology. The branch of psychology that studies the phenomena of social behavior; the study of the behavior of individuals and of groups in a social environment, especially as that behavior is affected by the presence or influence of other individuals.

Stabilimeter. An instrument for measuring the amount of bodily sway when the subject (usually blindfolded) stands erect and endeavors to hold perfectly still.

Submission. Yielding to the commands or leadership of another; conforming one's behavior to that of another.

Superego. (Psychoanalysis) a system within the total psyche developed by incorporating the parental standards as perceived by the ego; or, somewhat more broadly, by incorporating the moral standards of society as perceived by the ego.

Surrogate. A person who functions in another's life as a substitute for some third person: e.g., for the child, the teacher is often a parent surrogate.

Syndrome. The pattern of symptoms that characterizes a particular disorder or disease.

Thematic Apperception Test or TAT. A projective test in which a person is asked to tell a story suggested by each of 19 pictures. The pictures are sufficiently vague to leave much to the imagination of the testee. The test assumes that themes apperceived by the testee in the pictured behavior are those which are important in his own life.

Trait. Any enduring or persisting character or characteristic of a person by means of which he can be distinguished from another; that about a person which is consistently manifested, despite variation within a considerable range of circumstances.

Unconditioned response (UCR). A response evoked by a certain stimulus situation at the beginning of any given learning or conditioning period.

Variable. A quantity that may increase or decrease, continuously or discontinuously, without other essential change: e.g., the area of skin stimulated, the intensity of the stimulus, the number of correct answers on a test, the time taken to react. In psychology, three classes of variables are distinguished: R variables, responses or acts; S variables, properties of the physical or social environment; O variables, the organic or organismic or personal variables, the changeable properties of the person or organism. The R variable is always the dependent variable.

Variance (σ^2). The square of the standard deviation. It is used as a measure of the extent to which individual scores in a set differ each from each. Syn., mean square deviation, mean square error.

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